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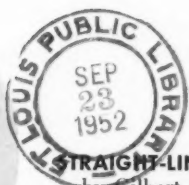
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January • 1951

VOL. 8 • NO. 1



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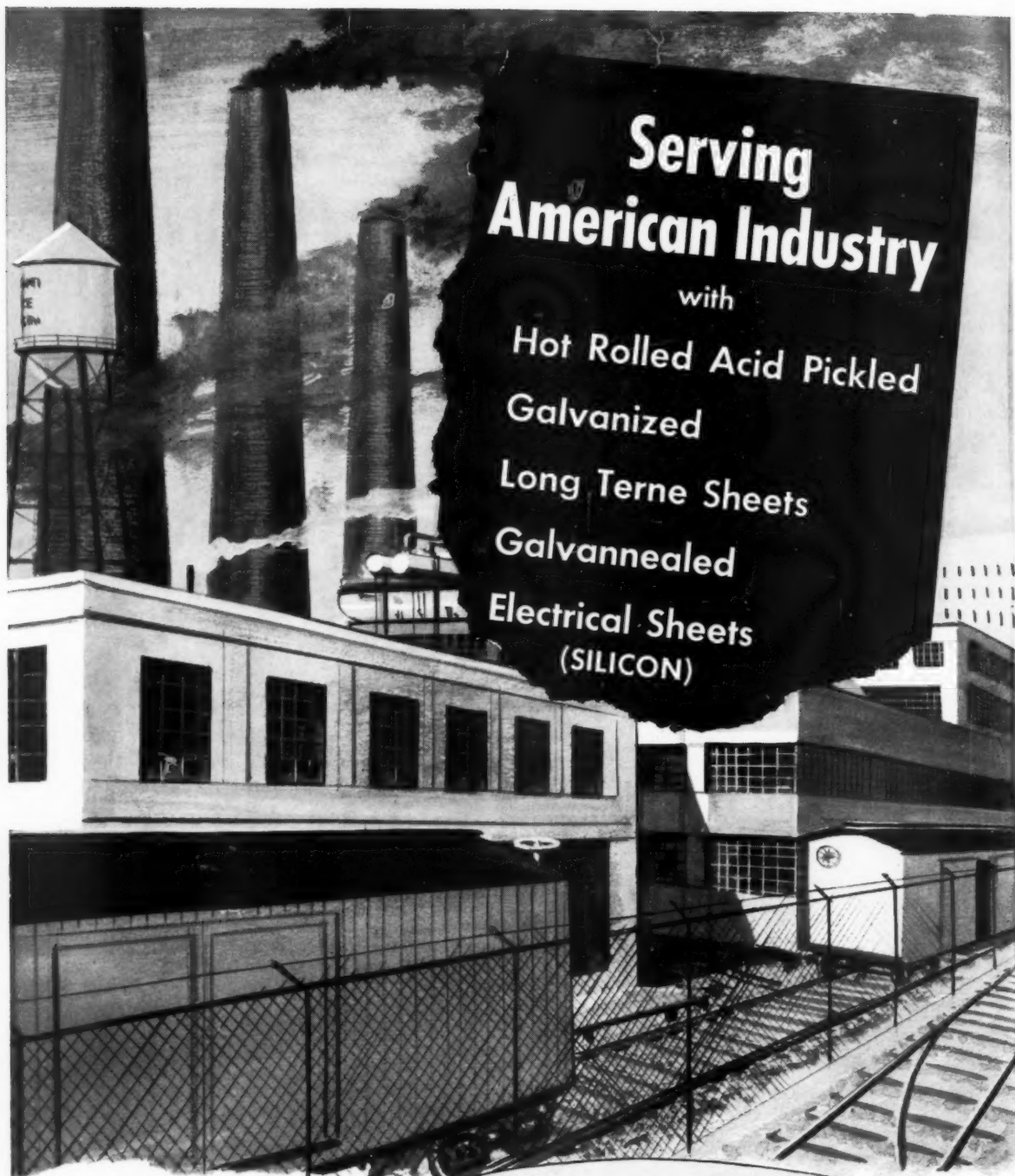
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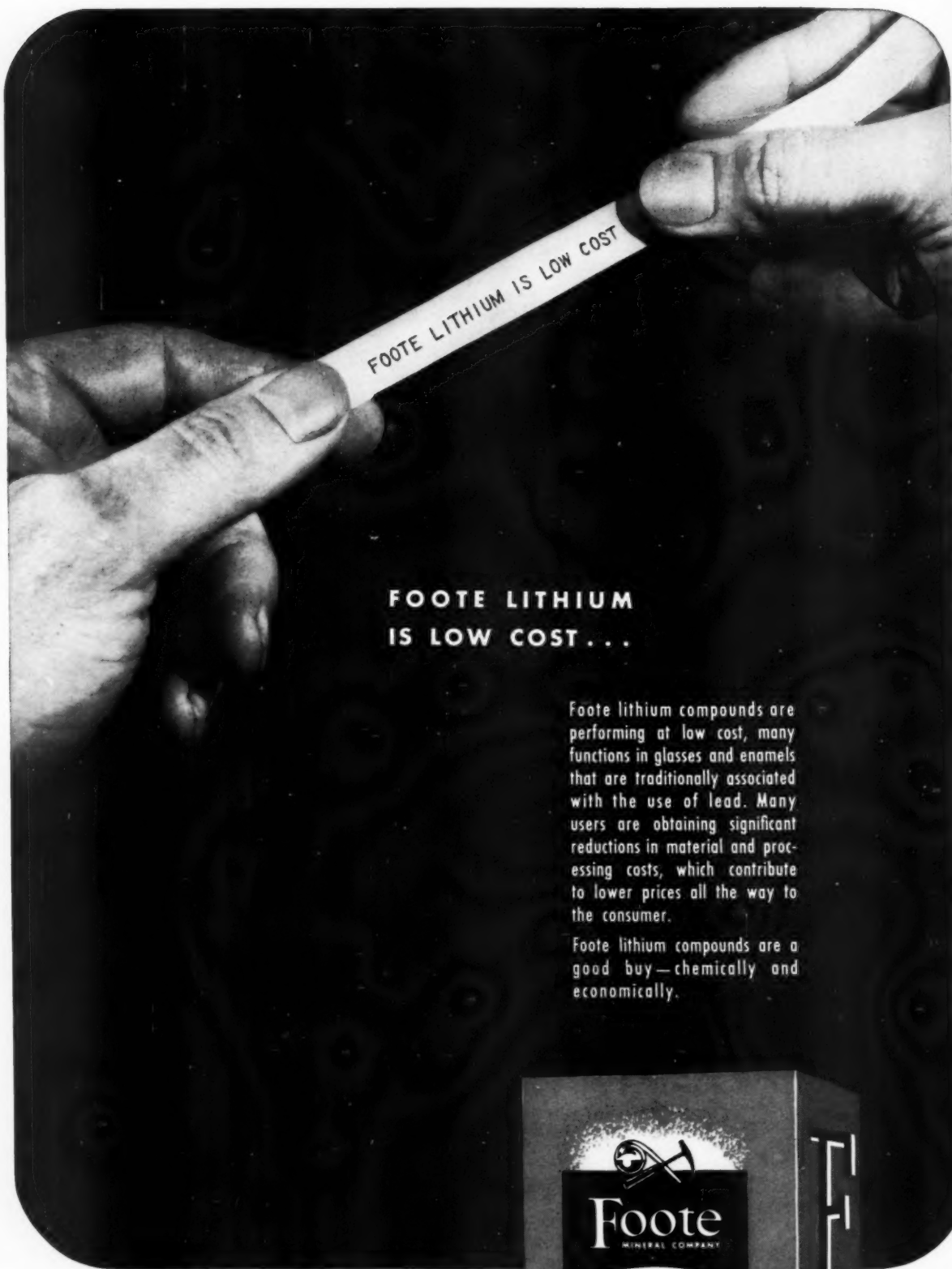
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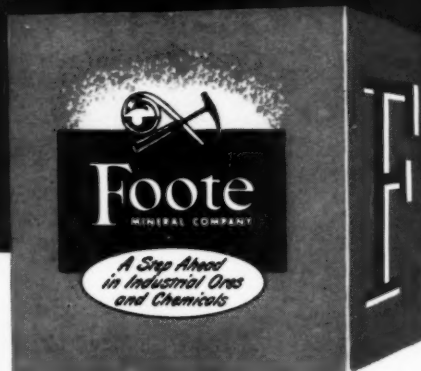
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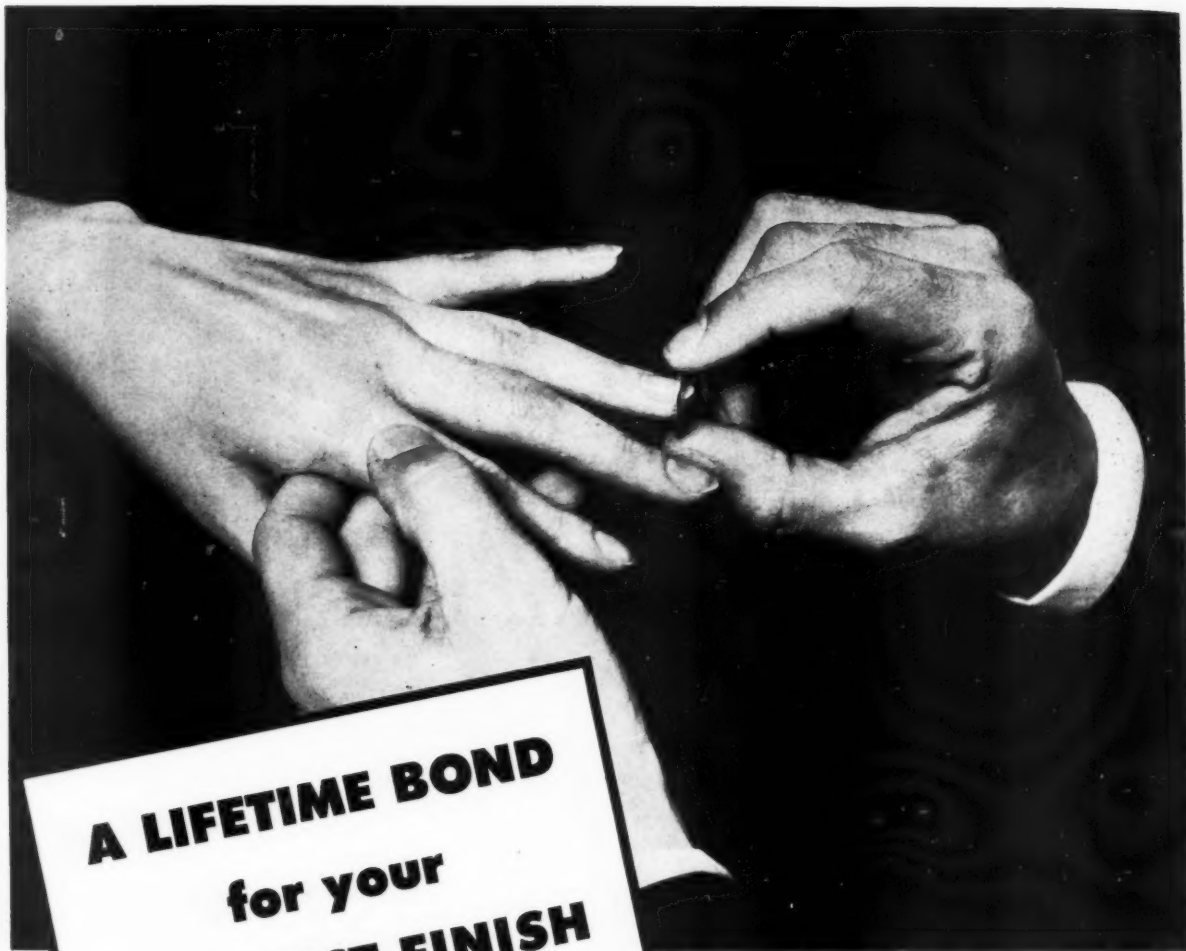
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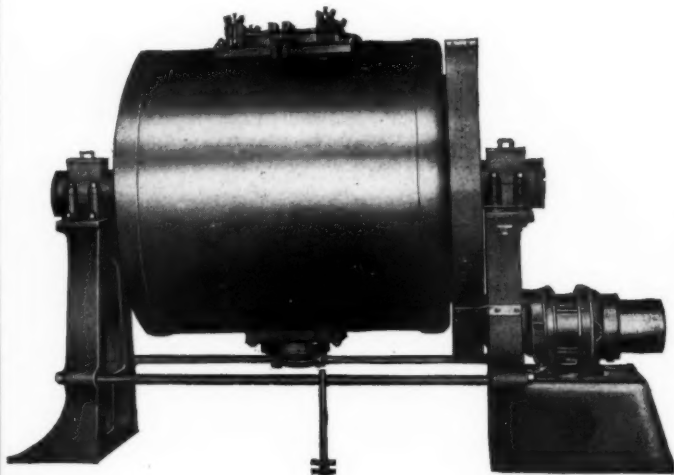
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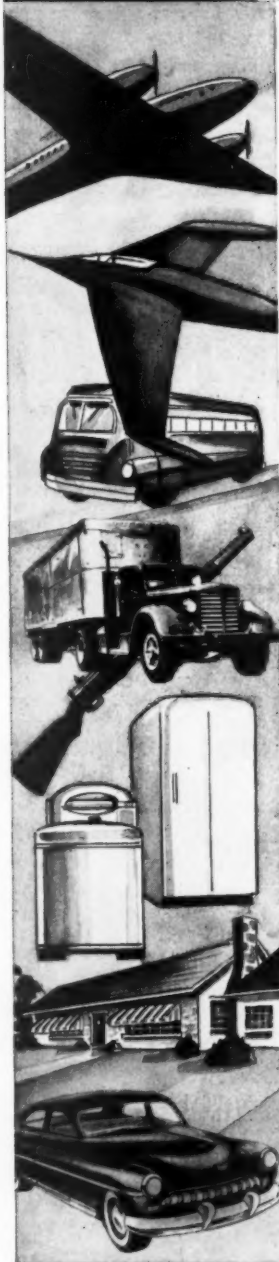
NBP

FROM RAW METAL TO FINISHED PRODUCT

CHEMICALS
ACP
PROCESSES

phosphate
coating
chemicals

TO
MAKE
YOUR PRODUCT
DURABLE



PAINT BONDING

"GRANODINE"® forms a zinc-iron phosphate-coating bond on sheet metal products—automobile bodies and fenders, refrigerator cabinets, etc.—for a durable, lustrous paint finish.

"LITHOFORM"® makes paint stick to galvanized iron and other zinc and cadmium surfaces.

"ALODINE"®, the new ACP protective coating chemical for aluminum, anchors the paint finish and protects the metal.

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"THERMOIL-GRANODINE"® a manganese-iron phosphate coating chemical, forms on steel a dense crystalline coating which, when oiled or painted, inhibits corrosion.

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The oiled "THERMOIL-GRANODINE" coating on pistons, piston rings, cranks, camshafts and other rubbing parts, allows safe break-in operation, eliminates metal-to-metal contact, maintains lubrication and reduces the danger of scuffing, scoring, galling, welding and tearing.

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"GRANODRAW"® forms on pickled surfaces a tightly-bound adherent, zinc-iron phosphate coating which facilitates the cold mechanical deformation of steel, improves drawing, and lengthens die life.

Send for descriptive folders and Government specifications chart on the above chemicals. Write or call for more information on these products, and advice on your own metal-working problem.

Pioneering Research and Development Since 1914

AMERICAN CHEMICAL PAINT COMPANY
AMBLER, PA.

Manufacturers of Metallurgical, Agricultural and Pharmaceutical Chemicals

MEETINGS

ENAMELER CLUBS OUTINGS

The Central District Enamellers Club fall outing is scheduled for September 8, at Alliance Country Club, Alliance, Ohio.

The Eastern Enamellers Club annual outing and clam bake is scheduled for September 8, Elkwood Club, Alburtis, Pennsylvania.

NATIONAL METAL TRADES ASSN

The National Metal Trades Association will meet September 26-28 at the Palmer House, Chicago, Ill.

ENAMELERS SHOP FORUM

The annual shop practices forum of the Porcelain Enamel Institute will be held this year at Ohio State University, Columbus, Ohio, October 10, 11 and 12.

WORLD METALLURGICAL

CONGRESS

The first international World Metallurgical Congress will be held in Detroit, October 14-19. It will be held in conjunction with the 33rd annual National Metal Congress and concurrent National Metal Exposition.

AGA CONVENTION IN ST. LOUIS

The 33rd annual convention of the American Gas Association will be held in St. Louis, Missouri, October 15, 16 and 17.

PAINT INDUSTRIES MEETINGS

The annual convention of the National Paint, Varnish and Lacquer Association will be held in Atlantic City, October 29-31, and immediately following will be the annual convention of the Federation of Paint and Varnish Production Clubs, November 1-3.

PEI ANNUAL MEETING

The annual meeting of the Porcelain Enamel Institute will be held at The Greenbrier, White Sulphur Springs, W. Va., October 31, November 1 and 2.

October • 1951

VOL. 8 • NO. 10



LONDON GUARANTEE BUILDING
Michigan Avenue at Wacker Drive
THE HOME OF

finish

MONTHLY TRADE PUBLICATION

Established January, 1944

Published by

DANA CHASE PUBLICATIONS

360 North Michigan Avenue
Chicago 1

Telephone Central 6-1229

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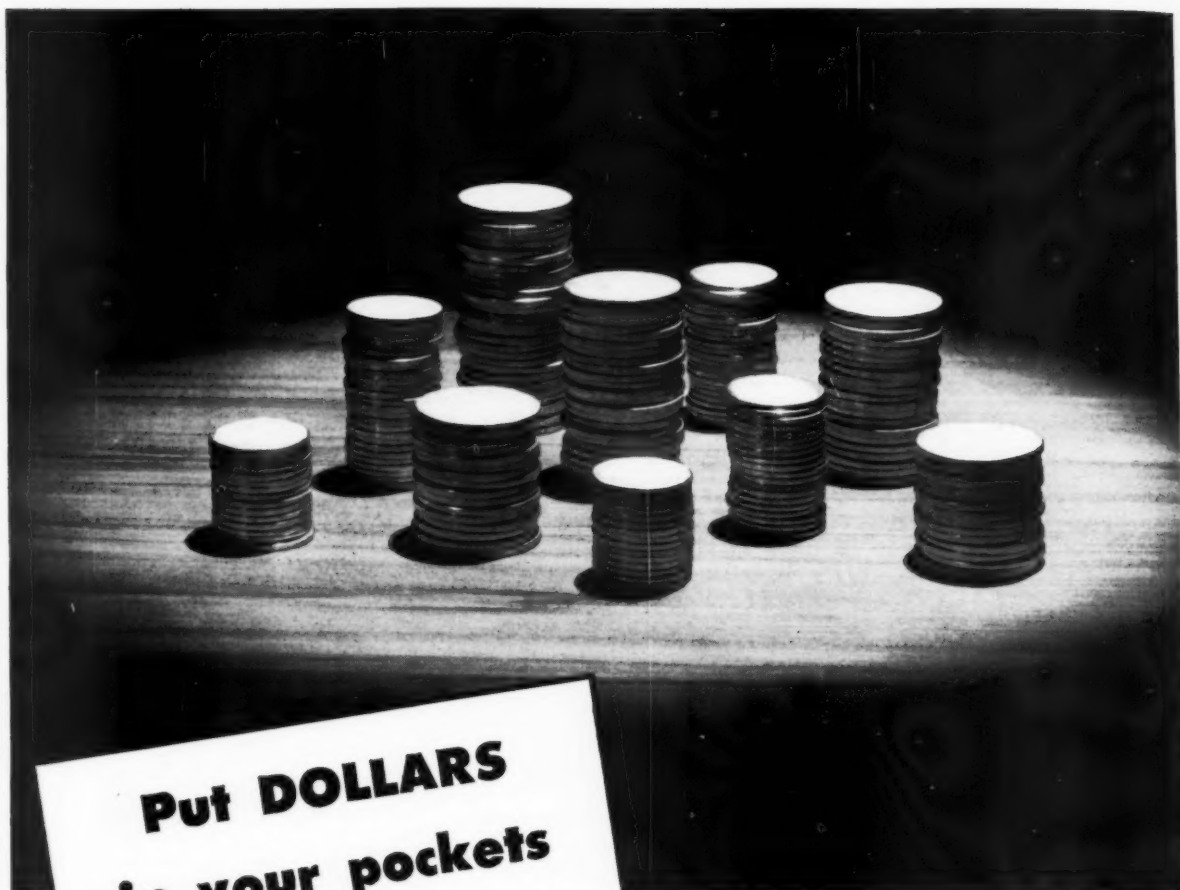
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NBP

FROM RAW METAL TO FINISHED PRODUCT



**Put DOLLARS
in your pockets
with CENTURY frits**

PLANTS that learned about Century time-proved frits during the past six months have more "dollars in their pockets" today as a result. Customers who have used Century enamels year after year can show a nice fat saving in enamel plant operating costs—that's why they continue to use them year after year.

Sure, they are priced right to start, but there are "in plant" savings that count up fast. Century ground coat enamels give the grip, the durability so important to your product, and they are easy and economical to apply. Century cover coats produce the finishes you can sell with confidence and produce them without extra fuss or special handling in the plant.

Make a note to arrange for a trial of Century

frits before another month rolls by. Then, by the end of this year you will agree with us that Century frits "put dollars in your pockets."



CENTURY VITREOUS ENAMEL COMPANY

• 6641-61 S. Narragansett Ave., Chicago 38, Ill. •



LONDON GUARANTEE BUILDING
Michigan Avenue at Wacker Drive

finish

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NBP

finish

FROM RAW METAL TO FINISHED PRODUCT

Jet blades cleaned and rust protected in one spray washer

Teamwork between chemicals and equipment is paying off for a midwestern manufacturer of jet engine parts. A Detrex washer is teamed with two Detrex chemicals for a 2-in-1 operation.

Detrex 53, in the first stage of the washer, removes oil, grease and shop dirt. In the second stage, a low concentration of Detrex 92 retards rust.

Proof of "customer satisfaction"—this manufacturer is now installing five more Detrex washers and degreasers for other cleaning operations in the manufacture of the jet blades.

You, too, can benefit by working with a company that is familiar with every phase of metal cleaning . . . a company long experienced in the manufacture of both cleaning compounds and equipment.

Metal cleaning know-how thru a Detrex field engineer is yours free for the asking.



MAKE YOUR
DIRTY WORK
OUR BUSINESS



DETREX

BOX 501, DETROIT 32, MICH.

Corporation

MEETINGS

HOME LAUNDRY CONFERENCE

The 5th National Home Laundry Conference, Hotel Commodore, New York City, October 31-November 1.

PEI ANNUAL MEETING

Porcelain Enamel Institute, 20th annual meeting, The Greenbrier, White Sulphur Springs, W.Va., October 31, November 1 and 2.

PAINT PRODUCTION CLUBS

Federation of Paint and Varnish Production Clubs, 29th annual meeting, Chalfonte-Haddon Hall, Atlantic City, N.J., October 31-November 3, immediately following annual convention of National Paint, Varnish and Lacquer Association.

NEMA ANNUAL MEETING

National Electrical Manufacturers Association, 25th annual meeting, Haddon Hall, Atlantic City, November 12-15.

REFRIGERATION EXPOSITION

The 7th All-Industry Refrigeration and Air Conditioning Exposition, Navy Pier, Chicago, November 5-8.

EASTERN ENAMELERS MEETING

Eastern Enamelers Club, Saturday, November 10, Sylvania Hotel, Philadelphia.

ICHAM SEMI-ANNUAL MEETING

Institute of Cooking and Heating Appliance Manufacturers, semi-annual meeting, The Netherland Plaza, Cincinnati, December 3-5.

HEATING, AIR CONDITIONING

ASSN.

National Warm Air Heating & Air Conditioning Association, 38th annual meeting, Hotel Cleveland, Cleveland, Ohio, December 5-7.

CENTRAL DISTRICT ENAMELERS

Central District Enamelers Club, Allerton Hotel, Cleveland, Ohio, December 7.

December • 1951

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NBP

FROM RAW METAL TO FINISHED PRODUCT

3 Spray Cleaners

that reduce pressure cleaning to a routine operation

SC-2-E is a water-solvent emulsion that performs better than straight solvents, can be operated continually without any redeposition from the bath, provides positive cleaning and long life.

SC-4 is in the classification of high alkalinity materials buffered for use on non-ferrous metals . . . equally adaptable to steel.

SC-9 provides the advantages of both alkali and solvent emulsions.

Within the scope of these three spray cleaners, you will find the answer to any pressure cleaning problems. Compare the cost of these products with any other cleaning method. Whether your operation is a single stage or a multiple cleaning sequence, you will still find these products equally economical and effective. Ask the Northwest man in your area for his recommendation or write to us for complete information.



NORTHWEST CHEMICAL CO.
9310 ROSELAWN DETROIT 4, MICH.

LO^{PH}

pioneers in pH cleaning control — serving you since '32

THE finish LINE

AS FINISH STARTS ITS EIGHTH YEAR — we review a few lines from the pages of "The Finish Line" for 1950.

A prediction — February, 1950

1950 can be a boom year — for major appliances and other metal products for the home. With a reasonable degree of stability in the supply and prices for raw materials, in the labor market and in the retail sales prices for finished products, the total sales from major appliances and allied metal products may hit a peak for 1950 higher than for any other period.

(When the statistics are released this prediction may prove to have been conservative.)

Keep keyed for activity — March, 1950

One thing is certain—the coal strike *will* be settled and industry will again be on its way. To make up for all lost production in steel and finished products may not be possible, but it is a certainty that the metal product plants will be ready to get out every single unit for which steel can be made available.

American industry has taken strikes and set-backs in stride before and will do it again. There is certainly no place or time for the pessimist during 1950. There should be no let-up in aggressive sales activity with strikes or curtailed production as an alibi. Let the salesman do his job, and leave with the P.A. and production men the problems of answering shortages and getting production.

A sound sales policy — April, 1950

We can sit back and groan about high labor rates, strikes, material shortages and all of the other alibis for lazy business or we can override these factors in many cases by a sound, progressive sales policy. Such a policy *must* include sales training from Management to Retail Salesman . . .

You will find a few ready-made dealers who are "fired" to do big things. For the most part, the results at the dealer level will depend on how much attention you give to the problem and how many good ideas you offer for getting prospects lined up and turned into customers.

The battle of the finishes — May, 1950

The "battle of the finishes" becomes more interesting
finish JANUARY • 1951

every day as the producers of materials for the protection and beautification of home appliances and other metal products continue to improve their products through research and development . . .

All of these advancements, whether they are in the fields of organics, ceramics, plating and any kind of metal coating, are entirely to the advantage of the product manufacturer, who must offer the public greater beauty, greater durability, and a higher degree of salability at the lowest possible selling price.

It's an educational problem — October, 1950

Far be it from us to minimize the difficulty involved in "controlling" distribution, particularly at the retail selling level. This will never be a legitimate excuse, however, for failing to do everything possible to afford adequate sales training and educational information to *all* sales levels.

As we have said repeatedly, there are a few outstanding manufacturers who are doing a thorough job of sales education and training work from factory level to the retail floor. There are many more in the appliance field, however, who are continuing to concern themselves primarily with the production and "disposition" of their finished products without sufficient attention and cooperation at the retail level to insure a satisfied user, or, in other words, an actual "sale".

Defense orders — December, 1950

It will require leaders adept at tight rope walking to hold to a timetable that will keep production and resulting national income high on peacetime goods while at the same time draining off materials, production facilities, and manpower for defense requirements. . . .

Production remains predominantly for peace, but the good Boy Scout slogan "Be Prepared" could never be learned at a better time than now.

We hope you won't be required to convert but better to have your foot in the defense production door. You will see **finish** converting too (editorially) when the time is ripe so that we can continue to serve our readers.

Dana Chase

EDITOR AND PUBLISHER

HD-N

Cuts Cleaning Time

Cowles HD-N Cleaner, the *new* heavy-duty soak cleaner for ferrous metals, will often do in 10 minutes what it takes other cleaners 30 minutes or more to do. It is specifically formulated as a straight or barrel soak for precleaning before plating, enameling, pickling, painting, back-shop reconditioning—or anywhere a heavy-duty cleaner is needed to remove stubborn types of soil.

The latest developments in metal cleaning research have been incorporated in HD-N to assure maximum detergency under all conditions of usage.

HD-N may also be used on such active metals as brass and zinc, if some attack is acceptable.

HD-N penetrates and removes such soils as oil, carbon, grease, drawing compound, graphite, road and shop dirt in *one* cleaning operation. It is fast, thorough, and does a complete job . . . is readily and completely soluble in hot water.

COWLES CHEMICAL COMPANY

Metal Cleaner Department

7016 Euclid Avenue • Cleveland 3, Ohio

WRITE FOR complete
information—the at-
tached coupon is for
your convenience.

Cowles Chemical Company
7016 Euclid Avenue
Cleveland 3, Ohio

Please send me complete information on
COWLES HD-N CLEANER.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____



Camera: 2 1/4 x 3 1/4 Graphic, 4.5 lens
Film: Super XX—Exposure: 1/50th sec. f:11

"Solitude in the Adirondacks" by Wm. Schabert, Scott Aviation Corp.

TEN DOLLARS will be paid for good quality black on white 8x10 enlargement chosen for this page. Sports subjects or plant operations given preference.

OVER 7,000



CENTURY VITREOUS ENAMEL COMPANY

• 6641-61 S. Narragansett Ave., Chicago 38, Ill. •

News from Washington

by Orville Johnson • (AS OF DECEMBER 11, 1950)

WHAT will be the effect of the speeded up war effort upon major appliance and allied metal finished products? The impact will be felt, but to varying degrees depending on products made and materials used . . . The early National Production Authority regulations have affected basic materials. These curtailments have been handled as across-the-board percentage cuts using a selected base period, and the cuts affect all civilian users. Under these regulations, makers of civilian goods such as appliances get the same percentage of curtailed materials as makers of ash trays and toys . . .

The pattern for a *Controlled Materials Plan* similar to that in existence during World War II, which would ban the use of scarce materials in "non-essential" products, appears to be taking form. Just what products would be considered as "essential" remains to be seen, but short of all-out war, it is expected that appliance production would be relatively high on the priority list of civilian goods. Thus, the appliance industry *could* benefit for a time, at least, under the controlled material procedure due to come. Also, it appears advisable for companies unable to obtain defense work now to divert their production as much as possible toward civilian goods likely to be considered as "essential"; materials curtailments are apt to be less severe on them, at least for a while.

The materials outlook

A look at the materials situation indicates that many of the metals and chemicals on the critical list are needed in appliance production. The pinch is already being felt.

Cobalt oxide, an essential ingredient in the ground coat of porcelain enamel, is already being curtailed sharply for civilian use. The NPA directive for December allowed only 45% supply based on average orders during the first half of 1950, and inventories were limited to 20 days' supply. The NPA Order for the first quarter of 1951, effective January 1, is expected to be equally severe on

civilian users of cobalt in any of its various forms . . . The impact of the cobalt cutback will be felt by appliance makers so dependent upon porcelain enamel. Frit makers emphasize that they have no substitute for cobalt oxide, though they continue research that has been going on for years. They point out that it is the only known material which will assure a satisfactory bond between the enamel and the steel. The availability for porcelain enamel use of a low grade nickel-cobalt concentrate, uneconomical for refinement to metallic form, is a possibility. This nickel-cobalt concentrate supply, which is estimated to be sufficient to provide at least 25% of the porcelain enameling requirements, is dependent upon establishment of special refining facilities. Even then, industry technical men caution, the successful use of this low grade concentrate will depend upon the outcome of additional research.

The *aluminum* curtailment, effective January 1, hits the appliance industry severely. Since the original order was released announcing a 35% cut for non-defense industry, subsequent modifications have been announced. The 35% reduction will now take effect March 1, and cutbacks will be 20% on January 1, and 25% on February 1. Certain substitute materials are being sought by manufacturers to ease the impact. Stove and washing machine manufacturers told NPA officials that the aluminum order had caused them to consider porcelain enameled metal exclusively, as an alternate material where they had been using aluminum, but the cobalt shortage will apparently prevent it. Also, the possibility of extensive plastic substitutes is held unlikely.

Copper looms as another critical material. Its curtailment for non-defense use will be felt in appliance production. The cut-back of 15% during January and February will be particularly significant in the output of fractional horsepower motors, important in many household appliances.

Nickel supply for consumer goods, cut 35% starting January 1, will

affect appliance production by creating shortages for components, heat resisting tools, nickel salts for finishing operations and for a multiplicity of other uses.

Shortage of *zinc*, to be cut back 20% on the first of the year also, will hinder production of galvanized ware, and electroplating operations. Manufacturers of galvanized products are already predicting a drop in production during the coming year of up to 40%.

These material curtailments, plus the seemingly perennial problem of obtaining sufficient steel, all affect the appliance industry.

The labor supply

The unfavorable military developments are resulting in the placement of war contracts at a much faster rate; still, *there will be inevitable dislocations*. Materials shortages are likely to hit non-defense output before military orders can step in and fill the gap, especially where any great conversion of equipment is needed. Smaller manufacturers, dependent upon sub-contracts, will experience a longer time lag as prime contractors sort out the many companies seeking defense sub-contracts.

Manpower shortages will be one of the biggest problems in the long run picture . . . Advice to manufacturers being hurt by materials curtailments—use every means possible to hold on to your labor force through the conversion period. . . . It will be extremely hard to replace or train workers, as our total labor reserve is at its lowest point in history . . .

Can supply of key materials

be increased?

All industry is committed to helping fill the strongly rising demands for defense goods . . . The critical basic materials needed—steel, copper, nickel, zinc, aluminum, cobalt, and other scarce metals and chemicals—are also necessary for production of consumer durable goods, and it is apparent that the military requirements are to be met first . . . The BIG question is, *can the supply of these key materials be increased* and rapidly enough, to keep manufacturing lines of appliances and similar goods in profitable operation . . .

The answer to this question lies ahead.

INLAND DATA for STEEL USERS INLAND STEEL CO.

38 S. Dearborn Street, Chicago 3, Illinois

The role of Scrap in Steel Making

One of the most important raw materials in steelmaking . . . one frequently underrated by the casual observer . . . is iron and steel scrap. With over 90% of all the steel in the U. S. being made by the open hearth process, the scrap used by steel producers totals approximately 50,000,000 tons each year.

The open hearth method of steel production is geared to a pig iron scrap consumption ratio of roughly 50-50. This is to the final advantage of the steel user, since a large scrap diet in steelmaking results in a number of benefits: (a) steel is made faster (since scrap has already been "refined" once before, the "melt" time in the open hearth is decreased); (b) vital raw materials are conserved (it takes almost 4 tons of iron ore, coal and limestone to make a ton of pig iron); (c) unless scrap prices are abnormally high, the price of steel is cheaper; (d) steel is of higher quality (since scrap has already undergone one refining process); (e) transportation facilities, instead of being used for the additional raw materials otherwise required, can be released for other uses; (f) steel mill capacities can be expanded more readily with less emphasis on the blast furnace and more on open hearths and rolling mills.

About two-thirds of the scrap consumed in making steel comes from the steel mills themselves. Crop ends and sheared edges move quickly back to the open hearth shop. The remaining third, flowing to the mills largely through the 6,500 scrap dealers in the U.S., comes from the wastage in metal working plants ("production" scrap), auto graveyards, old building, bridge and ship wrecking projects, railroads (worn rails, freight cars, etc.), neighborhood junk peddlers.

The scrap dealers must sort the scrap so that the undesirables are eliminated, the alloys segregated and the right kinds of scrap can be delivered in large tonnages to the mills for most efficient steelmaking practice.

Today, with steel production at record peaks and with capacity continually expanding, it is more important than ever to keep scrap flowing back to the steel mills from every source. Everyone waiting for steel can help himself by assisting the movement of his scrap through his regular channels.



THE SCRAP CYCLE



Straight-line appliance production

water heaters and wall heaters produced at rate in excess of two a minute with plant and equipment designed to minimize handling and balance flow from multiple production lines

by *Gilbert C. Close* • FINISH CORRESPONDENT



Straight-line production is the theme of the new 170,000-square-foot plant of Mission Appliance Corporation, at Hawthorne, Cali-

fornia. Soon after the raw material leaves the warehouse at one end of the 830-foot-long main factory building, it is directed into one of four production lines where large and small gas water heaters, electric water heaters, and infra-red radiant circulator wall heaters are fabricated. Current production is in excess of two heaters a minute, and, when pressure is on, this production schedule can be stepped up considerably.

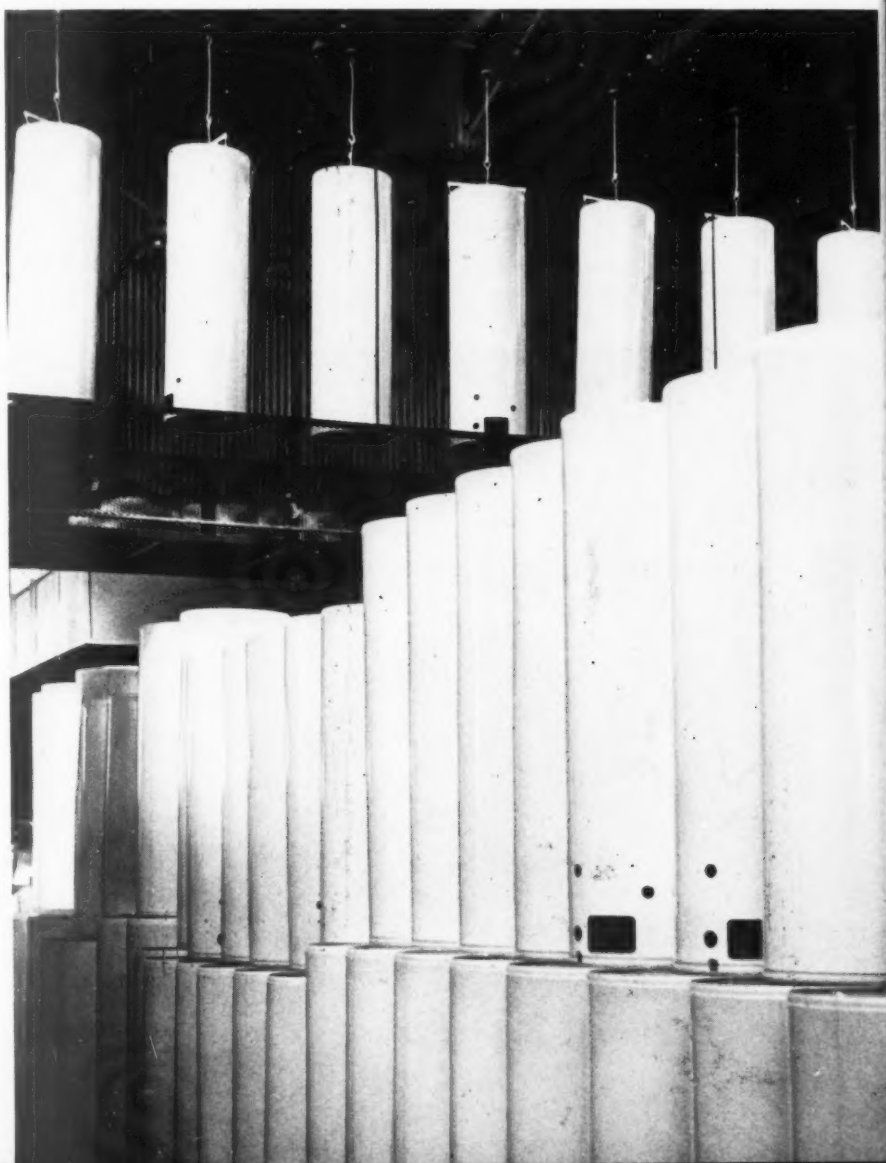
Organized in 1928 with a production staff of 12 men, Mission Appliance today employs approximately 400 persons and a million dollars worth of modern equipment to keep pace with its sales department. An 1100-foot spur track located entirely within the 11-acre factory site brings raw materials and carries the finished products away from the loading docks.

The bulk of the incoming material is flat rolled sheet steel used in fabricating the water heater bodies, jackets, and heads. An 18,000-square-foot warehouse, built during the past year, provides indoor storage and prevents deterioration and rusting of the steel prior to entering the production line. One end of this new building houses the radiant-type wall heater production line. In the stor-

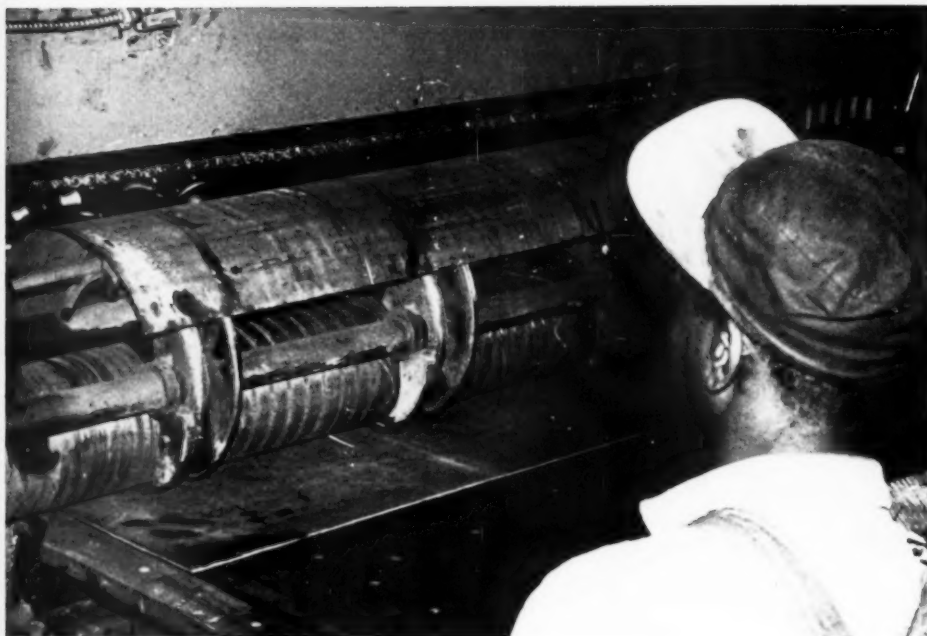
age end of the building, numerous pallets are used for classifying and holding the raw material according to size and gauge until it is needed for use.

A battery of four metal shears adjacent to raw stock storage is used

for blanking the sheet metal to size before it enters the various production lines. A 200-ton press and a 150-ton press are used for blanking and forming the heater heads in a single stroke. A battery of nine smaller presses is used for forming smaller



View of stacked water heater jackets near final assembly area, while overhead more jackets arrive via the continuous conveyor.



Left: Rolling a heater tank body. This machine, fully automatic, can roll-form bodies at the rate of three a minute.

Left below: Indexing machine for drilling holes in gas burners. This machine indexes automatically nine times to drill all burner holes in a single operation.

Below: Loading roll-formed and seamed water heater jackets on the 450-foot continuous conveyor.

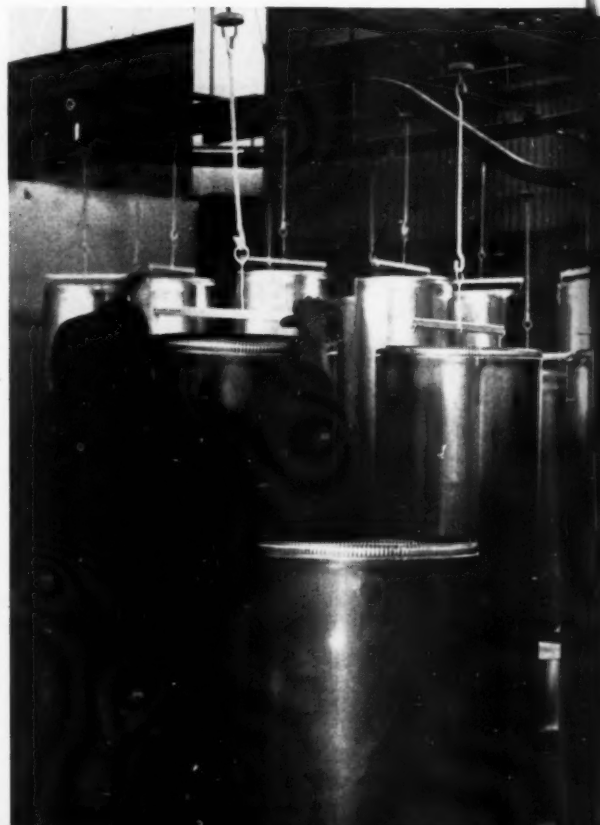
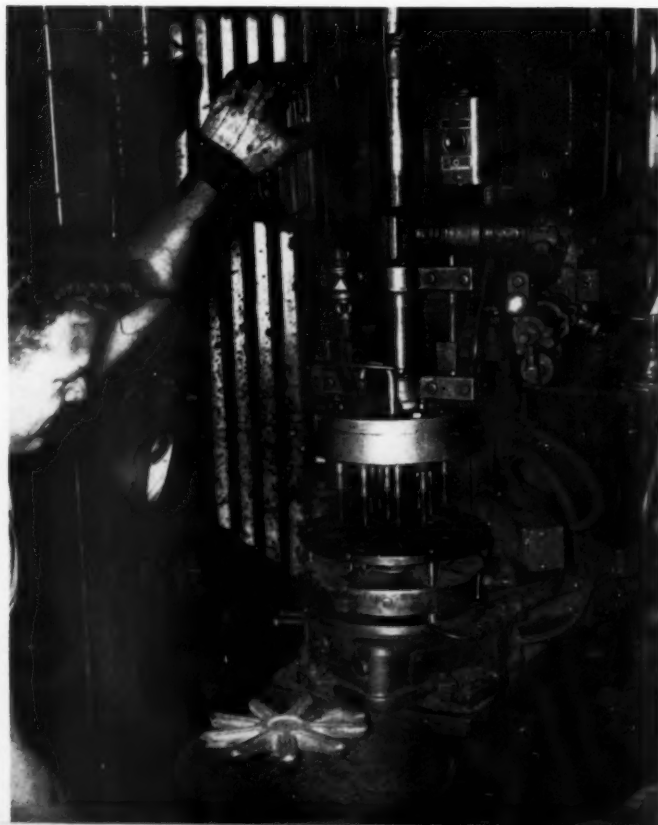
parts and for piercing access and mounting holes in flat sheets that will be subsequently rolled into heater jackets and bodies. These presses are gathered in a single location from which the formed parts flow to the appropriate production line.

**Specially designed
baffle forming machine**

Of special interest in this department is a company-designed baffle

forming machine used in the production of baffles for the various heating tubes. These baffles are formed from strips of steel approximately four inches wide. The machine is equipped with one stationary and one rotating jaw, and, during forming, the blanked baffle strip is twisted into a spiral that very much resembles oldtime Christmas candy. These baffles aid in extracting the heat from the hot gasses rising through the tube.

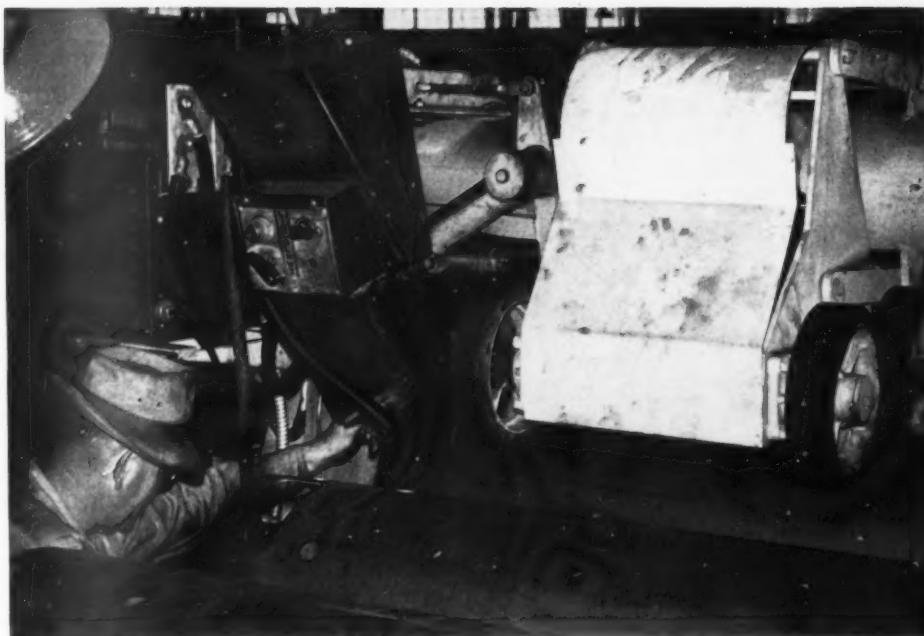
Another object of interest is the cleaning set-up used for cleaning all parts prior to welding. This is accomplished in cleaner and rinse tanks adjacent to the metal forming and welding departments. The tanks are located side by side with an upright rotating arm with offset beam between them. A basket suspended from this swinging beam is loaded, raised and lowered into the cleaner, thence into rinse by merely rotating the beam.



Right: Seam welding a head in a heater body. Formed heater bodies are fed by a gravity conveyor from roll-former to welding machine.

Below: Heater jacket receiving a coating of white enamel in fully automatic electrostatic spray booth.

Right below: In test pit, connections are made and each tank tested at 350 psi hydrostatic pressure. Tank fittings are inspected for gas leaks. Note heaters resting on crate bases.



Machine roll-forms 180

heater bodies per hour

Another company-designed machine is used for roll-forming the heater bodies. With this equipment, the body blanks are stacked on a hydraulic lift which incorporates an automatic actuating switch. When the lift rises, carrying the body blanks with it, the top blank closes the switch. This energizes electromagnets which pick up the top sheet and feed it into the

forming rolls. Just before the sheet enters the rolls, it is forced against a squared stop by an automatic positioner. After the body is rolled, it is moved automatically to a gravity conveyor. This machine, with one operator, can roll-form approximately 180 heater bodies per hour.

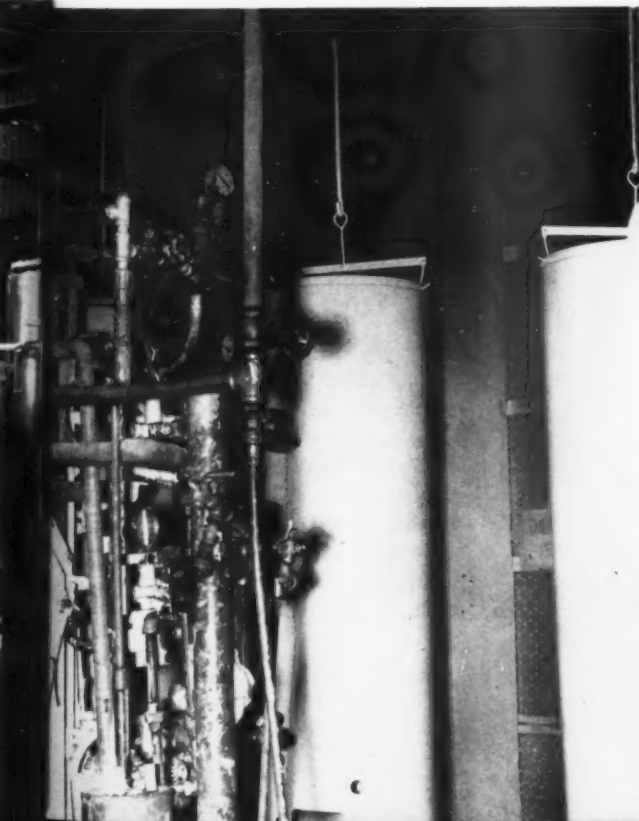
The seam welders used in welding the heater bodies and heads are also company-designed. Hydraulic pressure is used to press the heads in

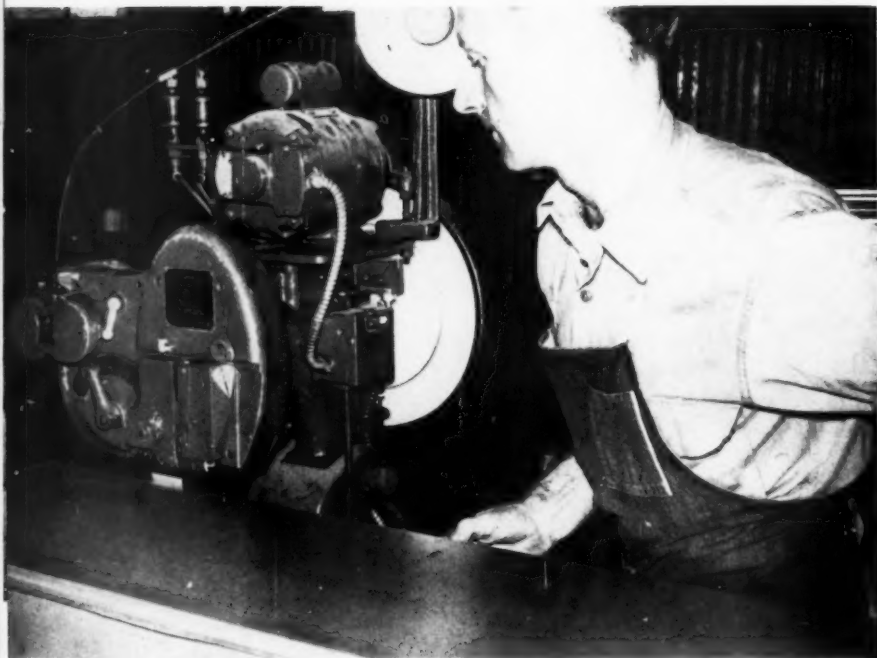
place, after which both heads are seam-welded automatically.

Galvanizing department

fully automatic

The galvanizing department at Mission Appliance is one of the finest of its type on the West Coast. It is almost fully automatic in operation. The department covers some 6000 square feet of floor space, and is force-ventilated to expedite removal





Metal stitching a radiant type infrared "Sun Air" wall heater body at the Mission Appliance plant.

of fumes. Baskets on a continuous conveyor handle the heater bodies through the various pre-galvanizing solutions, and a gravity conveyor carries the bodies from an elevated platform into the galvanizing tank.

The basket platforms on which the heater bodies are carried through the pre-galvanizing solutions are trapezoidal in shape, approximately eight and seven feet on the sides and five feet wide. This shape allows them to travel with a minimum of wasted space around the circular portion of

the conveyor above the pre-galvanizing tanks. When these baskets are lowered for loading, the platform nests in a countersunk floor area, bringing the bottom of the basket to floor level. The heater bodies can be moved directly onto the platform without lifting them.

The three pre-galvanizing solution tanks are rubber-lined. The first contains a sulphuric acid pickling solution, the second a rinse, and the third a zinc ammonium chloride solution. Cement drain troughs are provided

after each tank. The baskets are automatically lowered into the tank, timed, and removed until they have traveled the entire pre-galvanizing cycle. After the final tank, the conveyor basket moves to an elevated position near the galvanizing tank, and the bodies are fed by gravity into the galvanizing bath. The only workmen required in the department are those engaged in loading the baskets, and those who unloaded the tanks into the gravity feed that leads to the galvanizing tank.

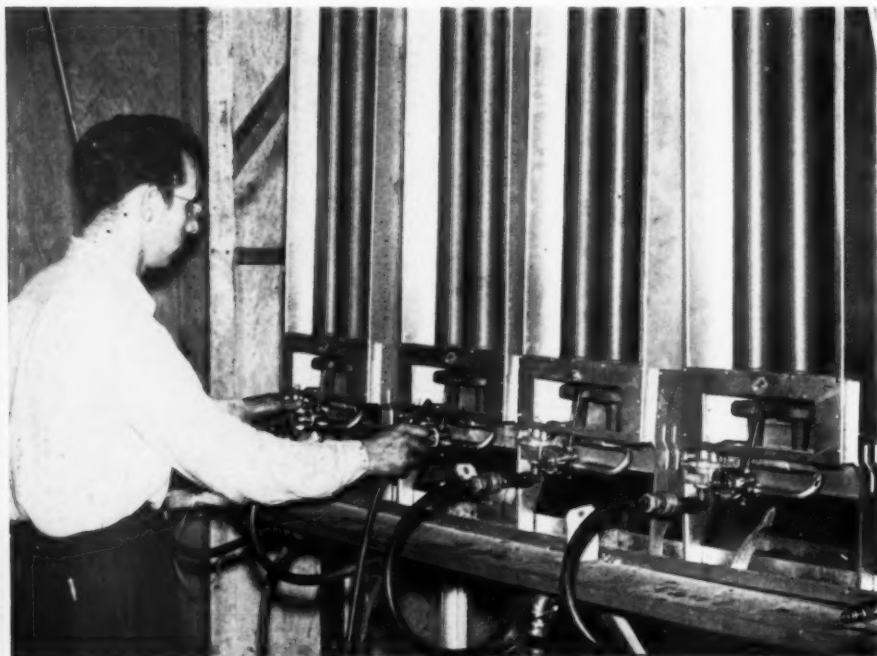
Electrostatic spraying used for exterior jackets

Heater jackets for the outside of the heater are fabricated in a separate department where sized sheet material is rolled, seamed, then joined by rolling the seam. The jackets are then placed on a continuous conveyor line and moved first into a 60-foot cleaning and drying chamber. The first 20 feet of this chamber utilizes an alkaline cleaning solution applied by spray pressure. The next 20 feet is a spray rinse, followed by 20 feet of hot air drying space. The conveyor travels about two feet per minute.

After cleaning, the jackets move into an electrostatic spray painting booth. This booth is entirely automatic in operation, with the geared conveyor hooks rotating the jackets before the vertically reciprocating spray nozzles. After spraying, the jackets continue on the same conveyor through an oven where a white enamel coating is baked on at 600° F.

The jackets continue from the oven on the 450-foot conveyor until they reach an area adjacent to where heater bodies from the galvanizing department are stored. Glass fibre insulation in sheet form is then wrapped around the bodies and held in place

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Wall heaters, same as water heaters, undergo rigid inspection under actual operation conditions before they are approved for shipment.

Coordination of fabrication and cleaning means money in the bank

with a classification of drawing and cleaning materials
and solutions of common cleaning problems

by *G. A. Cairns* • TECHNICAL AND PRODUCTION MANAGER, MACCO PRODUCTS CO., CHICAGO

IN investigating drawing and cleaning problems in a manufacturing plant, a logical question to ask the sheet metal foreman is "How is this piece cleaned after being drawn?" This question covers one of the most important factors in selecting the proper drawing lubricant. As is well known, difficult draws, poor die design and defective metal often can be counteracted through the use of graphite, white lead, wax, etc. In practically any of these cases, better drawing results can be secured through the use of pigmented compounds instead of non-pigmented compounds.

Quite obviously, pieces drawn prior to porcelain enameling cannot be drawn with any of the above-mentioned lubricants, because the work cannot be properly cleaned before the application of the ground coat.

For organic finishing a greater variety of drawing compounds may be used, depending upon the cleaning set-up. For instance, an entirely different material might be recommended where vapor degreasing is used than when cleaning is done in either a spray-type washer or a still tank.

Another point: even in a spray-type washer a different compound might be recommended, depending upon whether the pieces are to be phosphatized or simply cleaned with an alkaline or emulsion-type cleaner.

In practically all industries where metal is formed prior to finishing operations, there is difficulty in coordinating the activities of the sheet metal department with those of the finishing department. This is par-

ticularly true in the porcelain enameling industry, where the preparation of the metal for the porcelain coating



G. A. CAIRNS

is perhaps the most exacting cleaning operation in modern industry.

Coordination of foreman responsibility

All business management is aware that lines of authority and responsibility go hand in hand, but the establishment of this line of authority is difficult as related to the sheet metal department and the cleaning department. Obviously, each department needs a supervisory head, and yet the acts of one so vitally affect the acts of the other. It is easy to understand why the foreman of the sheet metal department and the foreman of the cleaning line often feel that the other is not cooperating to allow him to run his department at 100 per cent efficiency.

This is easy to understand when you put yourself in the place of the sheet metal foreman. He is given certain dies, certain blueprints for finished shapes, and also, particularly in recent years, metal to form that is not prime deep drawing stock. He knows that the question of lubrication is of great importance, but he is restricted greatly on what he may use, because of the requirements of the finishing department. This makes his job more difficult, and, in many cases, he is resentful of the finishing department, because he feels that they are passing their cleaning difficulties back to him. Also, he has a departmental budget and production quotas to meet, along with the responsibility for expensive dies, punch presses and other mechanical equipment.

On the other hand, the cleaning foreman is responsible to the finishing department for that portion of rejects due to metal not properly cleaned. He is shouldered with the same responsibility of a production quota and departmental budget, including the important item of solution costs, which can be greatly increased by improper selection of drawing lubricants. In most cases, he has no recourse except to plead with the sheet metal foreman, and failing in this, appeal to higher authority, which makes for inter-departmental friction and hard feelings.

Three solutions to the problem of divided responsibility

There are three ways in which proper coordination can be achieved. The first is to place the responsibility for the selection of the drawing com-

pounds and the cleaning compounds in the hands of one man. The second, to secure approval from your supplier of compounds for your cleaners, and vice versa. The third, to place the responsibility for both drawing compounds and cleaning compounds with the same supplier, which is possible in practically all cases. By using one of these methods, you are assured of compatibility between the two materials.

Some of the advantages of this consolidation of responsibility are obvious to management. There is a great American game known as "passing the buck." Practically everyone has played it at some time or another, but it is played most proficiently between departmental heads, between chemical manufacturers, and sometimes between combinations thereof. Sometimes the stakes are high, but the money involved is usually that of the management. Seriously, the elimination of this saves money and increases profits.

We shall consider now the actual coordination of the chemical make-up of drawing compounds and cleaners for the metal finishing industry.

There are three general classifications of drawing lubricants, namely: drawing oils, pigmented compounds, and non-pigmented compounds. Pigmented compounds are preferred for organic finishes, particularly where the cleaning is in a spray-type washer. Drawing oils are preferred for hot rolled steel and where the work is cleaned in a vapor degreaser. Non-pigmented compounds are almost essential for the porcelain enameling industry.

The primary specifications for porcelain enameling are:

1. No pigment.
2. No insoluble waxes.
3. No readily oxidizable oils; that is, oils that will harden upon standing.
4. No sulphur.

The secondary specifications are desirable, but not essential, for securing good enamel ware. They are:

1. No mineral oil.
2. No animal oil.
3. No animal oil fatty acids.

As indicated previously, the speci-

cations for drawing compounds prior to cleaning for organic finishing may be considerably less exacting, depending to a great extent on the method of cleaning used.

Drawing compounds classified

There are six different general classifications of non-pigmented drawing compounds:

1. Completely saponified soaps.
2. Fatty emulsions.
3. Emulsions of fats and other lubricants.
4. Soluble oils.
5. Plastic-type compounds.
6. Dried soap compounds.

Now let us consider the factors entering into the selection of the drawing lubricant to be used. Basically, there is only one reason for purchasing any particular type of drawing lubricant; that is, it must give the user the lowest possible ultimate cost commensurate with quality cleaning.

Five factors influencing cost

The costs which are affected by the lubricant used are:

First, reduction in scrap due to broken, torn or fractured metal. While good die design and good metal are extremely important factors, the lubricant also can make considerable difference in the scrap loss. Today, this scrap loss is more important than usual, because there is not only the loss of the cost of the metal, but also the loss of irreplaceable steel, which means that fewer finished units can be turned out for sale. Also, included in this item should be the handling of the metal, from the time it is brought into the plant until it is carried out as scrap.

The *second* factor involved in these costs is loss caused by scoring. This loss is made up of the down-time of valuable equipment, the cost of stoning the die, and the loss of productive labor while the press is down.

The *third* item of cost is the cost of application. This may be a direct labor item or it may be a capital investment for roller coating, spraying, or more elaborate set-ups required for dried soap coatings.

The *fourth* factor is decreased

cleaning room costs, which may be realized from less expensive cleaners, shorter cleaning cycles, and a lower reject rate as a result of better cleaning.

The *fifth* factor is the cost of the compound itself, which includes, of course, the price per pound or per gallon, and the cost of the emulsion as it is used on the blank. The cost of the compound is a small part of the total cost involved, and purchasing drawing lubricants on a price basis alone is definitely false economy.

Plant testing necessary

There is no way that these costs can be determined except by actual try-out in the sheet metal department. No accurate way has been found to evaluate the relative merits of drawing compounds under laboratory conditions. The compounds must be evaluated and fitted to the requirements of the particular plant involved by basing recommendations on past experience under as nearly similar conditions as possible.

Assuming that the selection of the compound has been made, we will now consider the selection of the proper cleaning material for its removal, first assuming that the soil to be removed is drawing compound and not foreign soil that was on the metal prior to application of the compound.

Choosing the proper cleaner

Where fully saponified soap or dried soap compounds are used, the cleaning is usually no problem, and, in this case, pure economy should be considered. In other words, a relatively cheap alkaline cleaner can be used to remove these materials.

In the case of fatty emulsions, these are most readily acted upon by free alkali in the cleaner solution, and in this case a relatively high alkaline cleaner should be used. This, of course, will saponify fatty acids and the fats in the compound, forming them into soaps in the cleaning tank and aiding in the rinsing of any residue.

In considering other types of compounds, such as those containing

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The current importance of market research in the home appliance industry

by E. E. McEwan • MANAGER, FORECASTING & SCHEDULING, HOTPOINT, INC., CHICAGO

Exclusive
feature
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Market research is divided into two phases: short and long range forecasting. Both phases are vital to the successful conduct of a large business such as ours. These phases, in turn, could be divided into two basic functions—recording facts from which trends are developed, and using these trends as one of the many tools for projecting future business.

When forecasts are used by management they become indispensable in meeting over-all objectives. Let me illustrate:

During the ten-year period just ended, the population of the United States has increased 19,000,000. Still, every little Johnny and Susie born within that period can flick a switch and a light goes on. That is no coincidence. This achievement is symbolic of the tremendous progress made by our electric utilities industry following the enormous demand placed on our power supply during World War II when, as a nation, we out-produced the whole world.

The tremendous demand for all-electric appliances since the war never could have been satisfied without this planning by the nation's electric companies.

The foremost responsibility of American management, as I see it, is to advance the welfare of the nation. This may soon mean giving top priority to defense needs, but we must not lose sight of our underlying responsibility for progress on the home front.

The problem is distribution

Now, where do we find ourselves

today? Basically our problem is one of production and distribution. No one questions our ability as a nation to produce. That has been demon-



E. E. MCEWAN

strated. I believe the problem that business now faces is distribution.

Now that we are committed to international defense, the degree to which defense requirements will cut into our peacetime economy is uncertain. This uncertainty implies that we must employ caution in the matter of trimming our organizations. Things have been easy to sell with the result that there is a strong urge to reduce our marketing organizations. Today we are observing that the panic buying that occurred immediately after the trouble started in Korea has tapered off.

We have all spent a great deal of time during the past five years in rebuilding our peacetime economy and particularly our distribution organizations which were so completely dismantled during the war. I do not believe that it is an overstatement to say that when our marketing organi-

zation is endangered, the basic premise of American enterprise is also threatened. We know that we never could have attained the standard of living that is the envy of the world without a dynamic selling economy. That is the lifeblood of a system that strives for more products for more people. Communism, on the other hand, finds its greatest strength in levelling down.

Ten million new customers

The enormity of the electric utility industry's expansion, translated into terms most significant to the appliance industry, can be seen in the fact that electric customers have increased from 34,000,000 in 1945 to 44,000,000 at the end of June, 1950. I would like to discuss a few specific factors that will have an important bearing on the nation's economy. Because I am associated with the home appliance industry, I have interpreted some of these points as they will apply to this industry. In a broader sense, however, they are presented here from a general management viewpoint.

In the past, management has dealt largely with the basic economic forces such as population, employment, income retail sales, and so forth, in evaluating present and future conditions. Besides considering these basic factors, we now have significant artificial forces being exerted by defense requirements and new government regulations.

Artificial forces at work

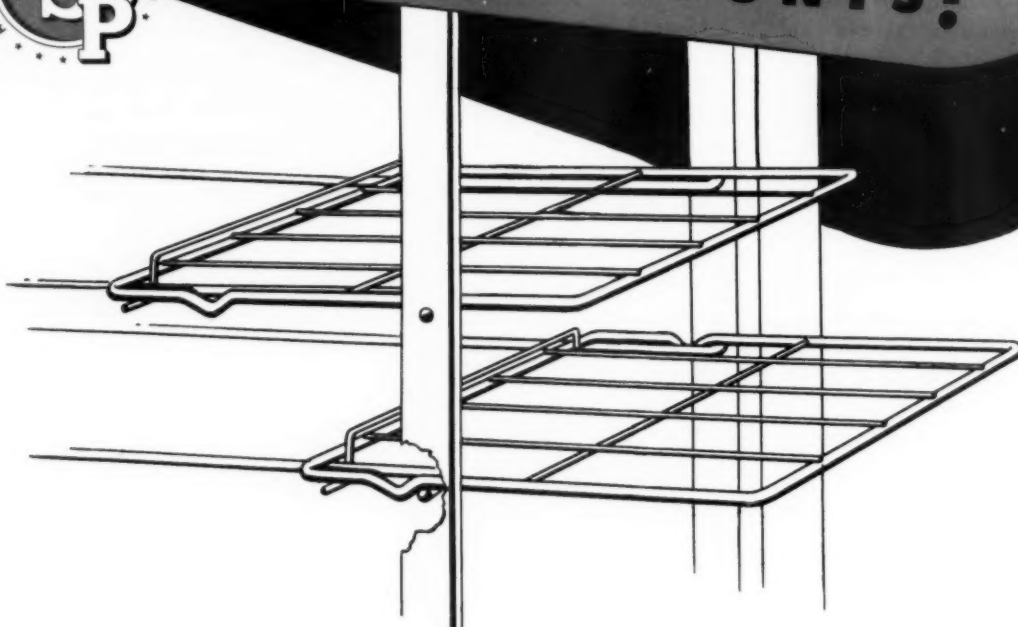
I believe that there are two fundamental points which should be analyzed seriously by every business man:

1. While the supply of materials

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**WHEN
.....EXPERIENCE
COUNTS!**

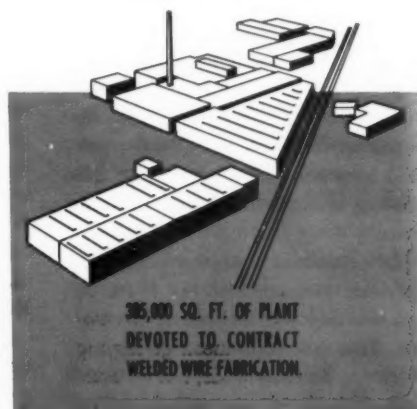


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SHELVING SPACE IS SELLING SPACE... MAKE THE MOST OF IT!

High temperature resistant ceramic coatings for iron, steel and alloy metals

by *Dwight G. Bennett* • RESEARCH PROFESSOR, CERAMIC ENGINEERING, UNIVERSITY OF ILLINOIS, URBANA, ILLINOIS

FOR a long time men have been concerned with protecting metal from corrosion. This is because with few exceptions metallic elements are happiest in such forms as oxides and salts and will revert to them at every opportunity. Of most concern are the metals and alloys which by their strength, workability, and availability are of economic and strategic importance.

In this article primary attention is directed toward the protection from corrosion (principally oxidation) of iron and steel and their alloys at operating temperatures higher than organic coatings can withstand. Such temperatures might reasonably be considered as beginning at about 500°F.

Prior to World War II much iron and steel was protected from lower temperatures by organic finishes applied by painting and lacquering or jappanning. For resistance to higher temperatures such alloying elements as chromium and nickel were used in substantial amounts.

With the critical alloy metal supply problems of World War II and the ever increasing demands for the



D. G. BENNETT

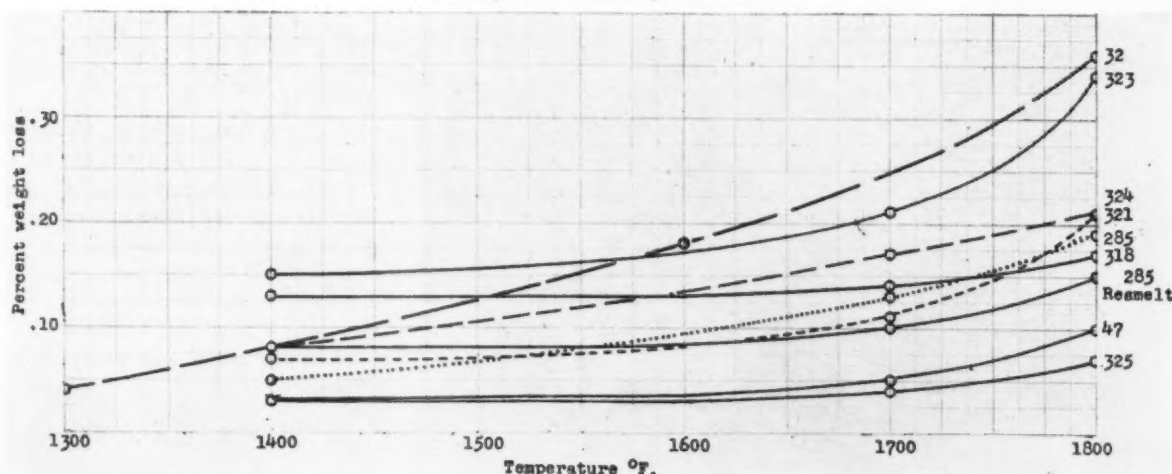
efficiency of higher operating temperatures, some determined and sustained efforts were made to utilize inorganic or ceramic coatings in high temperature metal protection. A very significant portion of this

work was initiated at the University of Illinois, in 1943, with the Power Plant Laboratory of the Air Materiel Command acting in the role of Sponsor. Other universities, research organizations, and government agencies cooperated with each one usually having some particular phase as their special problem.

It is not within the scope of this article to present an exhaustive survey of the continually expanding field of high temperature ceramic coating research. However, a brief review of the type of work which has been, or is being done by various members of the aforementioned group should be useful to anyone with a particular interest in the problem.

The Department of Ceramic Engineering, University of Illinois, has been, and is, concerned with the development of three particular types of coatings: (1) high melting but glassy base coats with or without substantial mill additions of refractory material; (2) crystalline top coats bonded with a minimum amount of high

FIG. 1 — The per cent weight loss with respect to temperature of ingot iron coupons immersed in various base coat frits and soaked for two hours.



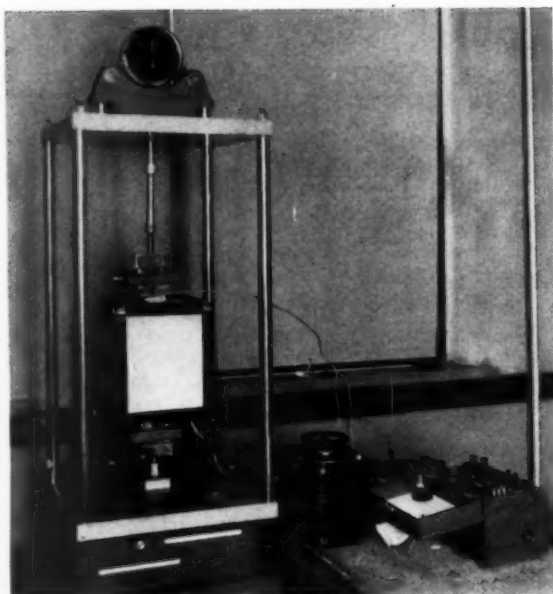
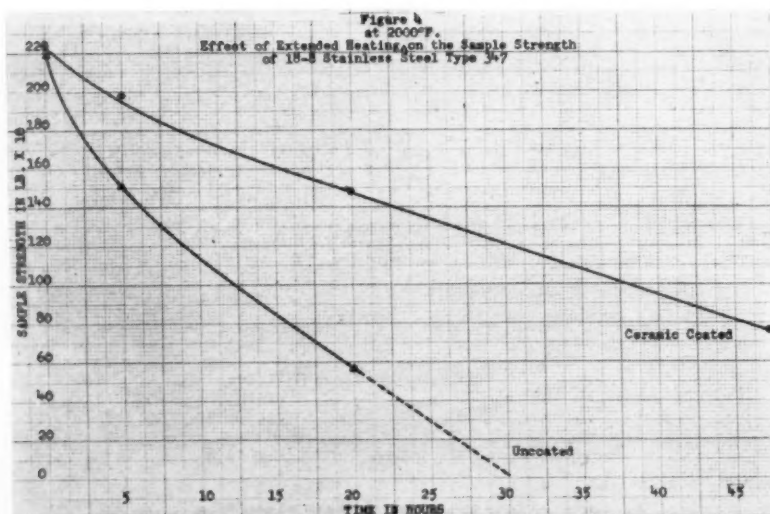
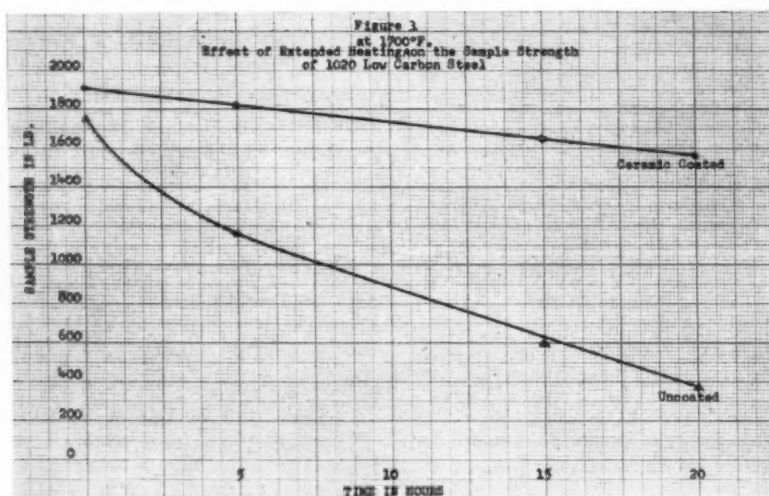


FIG. 2 --- Apparatus for determining tensile strength of coated and uncoated metal specimen at elevated temperatures.



expansion glass; and (3) high temperature resistant ceramic paints which can be applied in the field and will air harden to a serviceable condition.

The Armour Research Foundation was initially interested in ternary and quaternary oxide systems in which they hoped to develop two immiscible continuous phases one of which could be removed by leaching. The remaining material, it was thought, might produce a durable and high temperature resistant ceramic coating. They then directed their attention toward the alkaline earth aluminates and magnesium borates with additions of alumina, titania or zirconia.

Battelle Memorial Institute, acting as sub-contractor to the Rand Corporation, has explored the possibility of forming refractory coatings by vapor deposition methods. The refractory materials investigated included various metals, carbides, nitrides, borides, silicides, and oxides.

The National Advisory Committee for Aeronautics, working in close cooperation with the National Bureau of Standards, has studied ceramic coatings for the high temperature protection of molybdenum. They have also investigated other coatings from the same source on turbine blades in a turbo jet engine.

The New Jersey Ceramic Research Station, Rutgers University, made quite a long study of refractory $\text{BaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{SiO}_2$ glasses. They investigated coatings of ceramic metal-powder content and non-glassy coatings of MgO but with LiF additions. They also studied vapor deposition with use of an oxy-acetylene flame, an electric arc, and an atomic hydrogen arc.

The Ohio State University Research Foundation studied and developed certain coatings consisting of refractory ceramic grain which was either metal or glass bonded. In this group nickel-magnesia combinations appeared to be the most promising. They also studied and developed various high melting but glassy base coats.

PURPOSE OF COATING

In general, the purpose of ceramic

coatings is either to permit the use of metals at operating temperatures higher than normally possible or to greatly prolong their useful life at conventional operating temperatures. More specifically, ceramic coatings may be utilized to: (1) protect high temperature alloys against corrosion by the atmospheres encountered in service; (2) serve as heat barriers, thus permitting the use of higher gas temperatures at the same metal temperatures; (3) smooth out temperature gradients in metals, reducing the occurrence of hot spots; (4) protect low alloy metals, making it possible to use them in place of critical materials; and (5) resist contaminants (chemical, bacteriological) and facilitate decontamination.

Metals reviewed

The metals which stand to profit from ceramic coatings can be roughly classified into three groups as follows: (a) ingot iron, titanium enamel iron and low carbon steel; (b) ferrous alloys; and (c) non-ferrous metals and alloys.

Coatings reviewed

In conventional porcelain enameling a ground coat is used as a base for a cover coat. In the application of high temperature resistant ceramic coatings, as considered in this article, a base coat is used to protect the metal from the corrosive effects of oxygen, or in some cases from the products of combustion, as in an aircraft engine. A "top coat" consisting of some combination of such refractory crystalline materials as diaspore, alumina, Opax, Uverite, and Ceria held together by a minimum amount of a low radiant energy transfer bonding glass may be additionally applied. Such a coating is not dense and glassy. Its relatively open structure will not inhibit the passage of oxygen, but it will absorb and reflect some of the radiant energy which falls upon it.

Applications

Industrial and economic: The uses of ceramic coatings to protect metals from high temperatures are so numerous and important as to fairly stagger the imagination. Farm

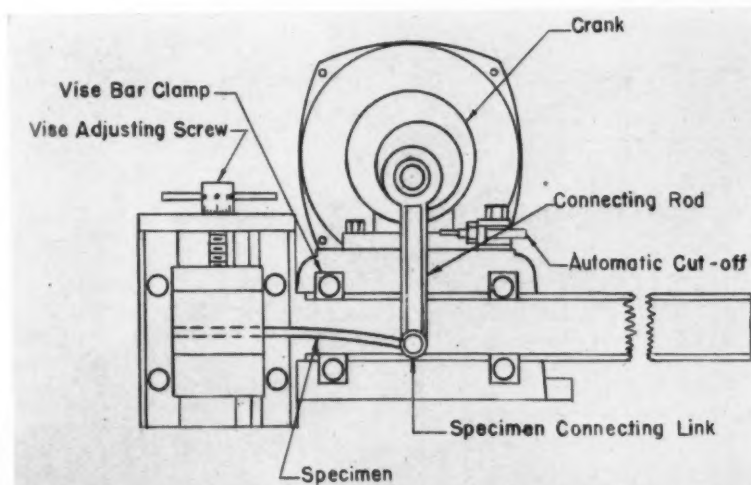
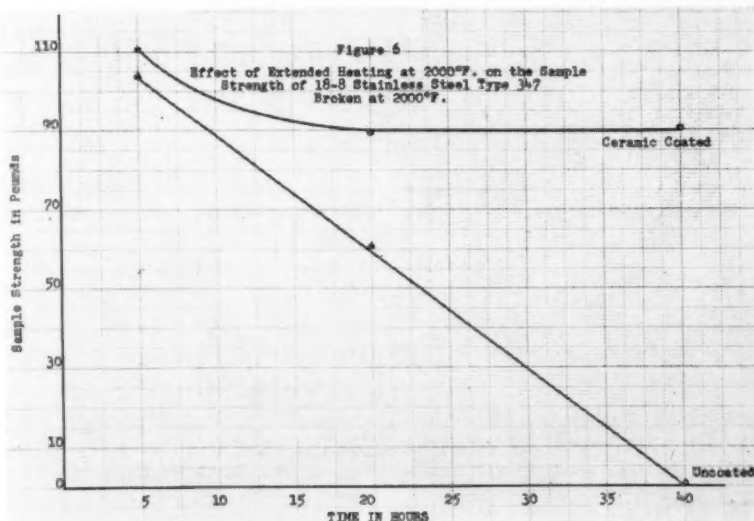
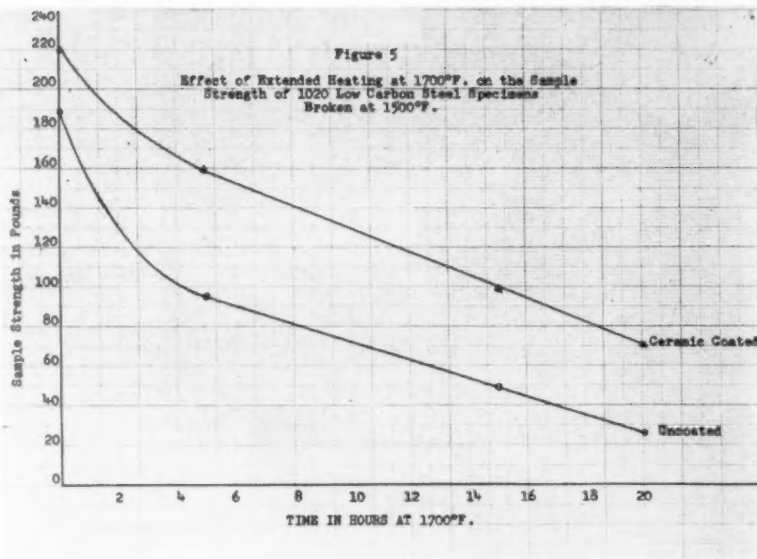


FIG. 7.--Schematic diagram of Krause Fatigue Testing Machine

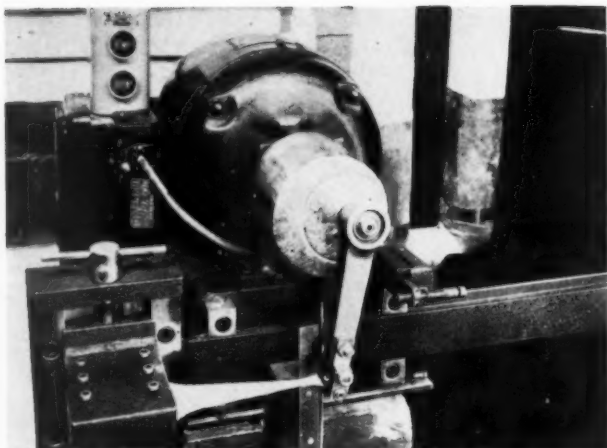


FIG. 8—Krause Fatigue Testing Machine with specimen in position for testing.

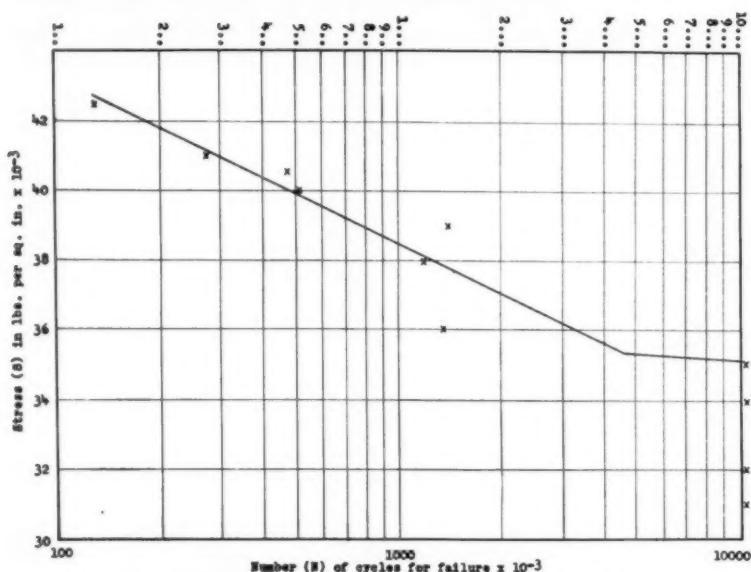


FIG. 9.—S-N diagram of specimens of stainless steel type 304 as received.

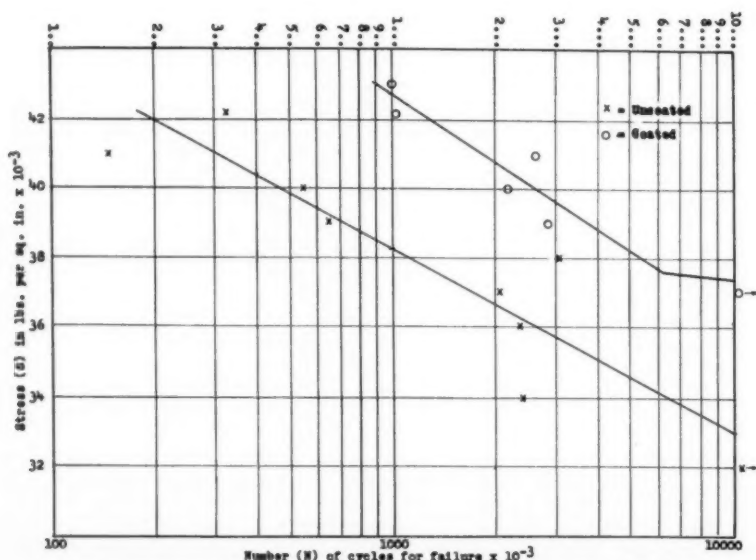


FIG. 10.—S-N diagram showing the effect of Coating No. 285-1 on specimens of stainless steel type 304 annealed for 10 minutes at 1800°F.

yards and city junk yards bear mute evidence to the corrosive effect of oxygen on iron and steel at normal temperatures. When industrial processes involve the use of such metals at temperatures of from 500 to 2000°F., excessive losses from oxide corrosion may be based not on years but on weeks, days, or even hours of operating time. A few specific applications might include space heaters, smoke pipes, superheated steam pipes, heat exchangers, heavy metal on roasting and siliconizing tube furnaces and annealing covers as used in heat treating metal. As a general statement, it may be said that the use of high temperature ceramic coatings should be considered in all installations where heat is accelerating the corrosion of any metal.

National defense: The very best of known metals and alloys are rightly used in national defense. Not cost but availability determines the extent to which they are specified. In wartime, unfortunately, there are never enough of the alloying elements to go around. The logical use of high temperature resistant ceramic coatings enters directly into this situation. There is now much experimental evidence to indicate that the use of properly selected ceramic coatings will often permit the high temperature use of relatively non-critical iron and low carbon steel. Even in the case of many alloy metals there is quite convincing evidence that properly applied ceramic coatings will (1) increase their fatigue strength and fatigue life, (2) prolong their usefulness at specified operating temperatures, or (3) permit their use at even higher temperatures for considerable periods of time.

Some specific ceramic coating applications to be considered in the national defense program are those to exhaust stacks or collector rings, tail pipes, tail cones, flame tubes, turbine buckets and to insulating foil blankets.

EXPERIMENTAL APPROACH

Coating development

In any well considered program of high temperature coating research

and development, and the work at the University of Illinois over the last seven years will be taken as an example, due consideration must be given to the kind of protection desired, the types and properties of the metals to be coated, and to the types and properties of ceramic materials available in coating formulation.

In the case of low carbon steel it must be protected from rapid and progressive surface oxidation. Steels of high alloy content are not subject to very rapid surface oxidation but under certain conditions some of them may develop grain boundary oxidation, or so-called intergranular corrosion. Some alloys are quite resistant to chemical attack but in general irons and alloy steels should be protected from acidic corrosion.

With such factors duly recognized, the formulation of the proper high temperature ceramic coatings can proceed along sound lines. In the case of a coating for iron or low carbon steel, the coating must fuse and seal off oxygen early in the heating cycle, before excessive oxidation can take place. In the case of alloy steels, the fusion of the base coat must be delayed until sufficient metal oxide to produce good adherence is produced. These two extremes will serve to illustrate that a ceramic coating which just matches the oxidation rate of one particular alloy metal may not be suitable for another alloy metal with a different rate of oxidation.

A further requirement is that the coating suitably match the thermal expansion of the base metal. Finally, a ceramic coating which fits the metal and adheres well to it must display long resistance to high temperature heating. This resistance involves two important properties which are (a) a slow rate of solvent action of the coating upon the base metal, and (b) heat stability of the coating itself. While some coatings volatilize but little, others have been found to give up as much as 38% of their alkali content upon long heating. Since the alkali oxides are not notably of high thermal expansion, their undue loss will result in enamel coat shattering or spalling after long heating.

finish JANUARY • 1951

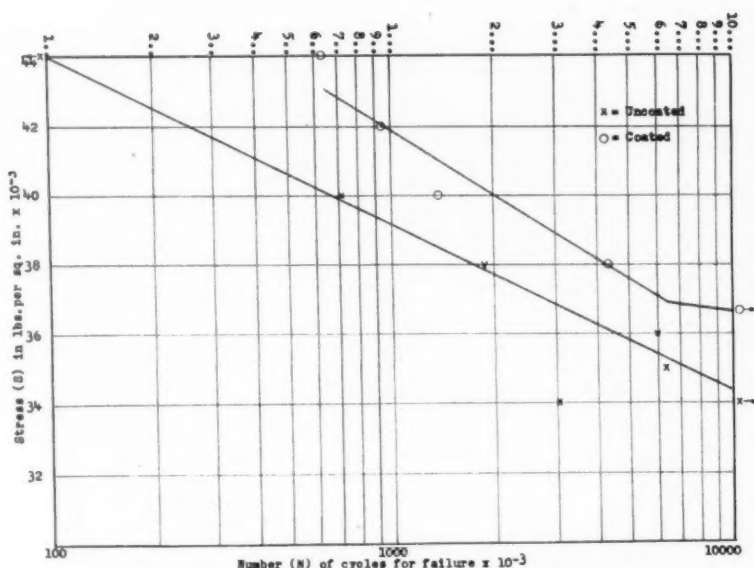


FIG. 11.—S-N diagram showing the effect of Coating No. 285-1 on specimens of stainless steel type 347 subjected to extended heating for 10 hours at 1800°F.

It is not within the scope of this article to go more deeply into the primary phases of coating formulation.

Coat evaluation

A rather carefully developed system of coating evaluation is used in rating new compositions. Button fusion tests, coefficient of thermal expansion determinations and cyclic long heat tests are routine. Some of the more promising coatings are given tensile and fatigue tests. Finally, service tests on engine test stands or in actual operational units are carried out.

RESULTS

Here, again, only some particularly interesting features from a long series of investigations can be selected for brief presentation at this time. A set of fifteen figures is used for illustration. In Figure 1 the solvent action of various base coat frits upon ingot iron is shown. It is to be noted that with some frits solvent action increases rapidly with increase in temperature. In others the solvent action increases but little with temperature increases. In Figures 2-6 the tensile strength of coated and uncoated metal specimens after and during

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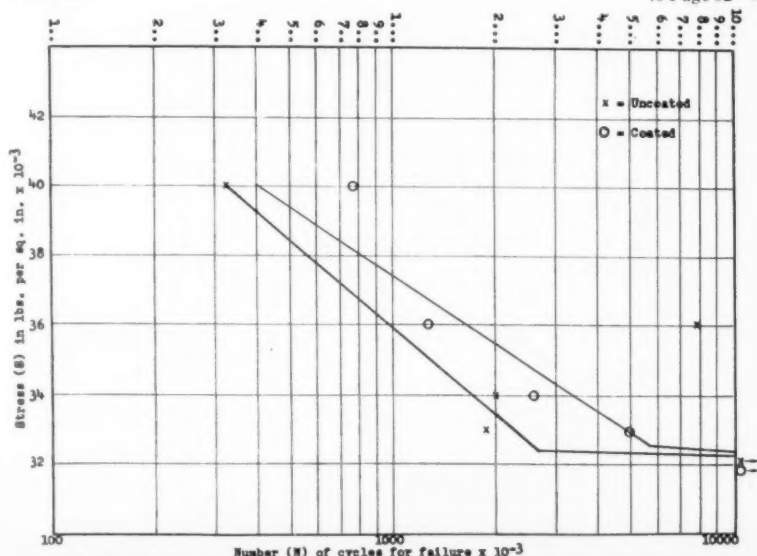


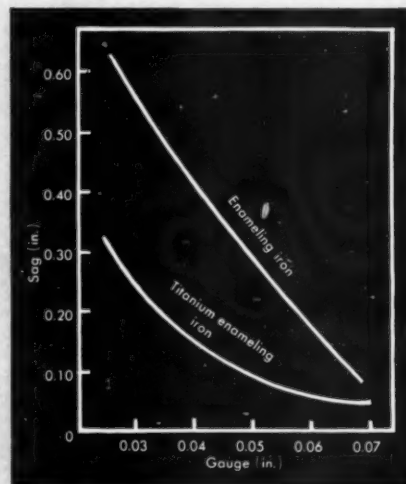
FIG. 12.—S-N diagram showing the effect of Coating No. 285-1 on specimens of stainless steel type 347 subjected to extended heating for 20 hours at 1800°F.

Improved Sag Resistance
makes Thinner Gauges Practical

TITANIUM IRON for vitreous ENAMELING

The improved sag resistance of Titanium-bearing Enameling Iron makes it possible to avoid firing-distortion with lighter gauge sheets. This is a worthwhile economy that enamellers are using to advantage. In addition to sag and warp resistance, Titanium Enameling Iron, containing sufficient titanium to stabilize all the carbon, offers other desirable properties:

- 1 GROUND COATS ELIMINATED:** Under proper shop conditions, cover coats may be applied directly to the base metal. These thin opaque coats reduce the hazards of chipping and breaking. Adhesion is excellent.
- 2 FISHSCALING AND BOILING REDUCED:** During years of research and production, not one case of fishscaling has been reported. Blisters in the finished enamel are also eliminated.
- 3 PRODUCTS MORE ATTRACTIVE:** In fabricated shapes warping, wrinkling and stretcher strains are avoided because of the increased sag resistance and excellent drawing qualities of Titanium Enameling Iron.



The Titanium Alloy Mfg. Division developed this new enameling process and produces the titanium alloy used in the manufacture of this enameling iron. For samples see your steel supplier. Detailed technical information may be obtained from our field engineers by writing to our New York Office.



TAM is a registered trademark

TITANIUM ALLOY MFG. DIVISION NATIONAL LEAD COMPANY

Executive and Sales Office: 111 BROADWAY, NEW YORK CITY • General Offices, Works, and Research Laboratories: NIAGARA FALLS, N. Y.

NEMA holds 24th annual meeting in Atlantic City

At the 24th annual meeting of the National Electrical Manufacturers Association, C. W. Higbee, manager of electrical wire and cable department, United States Rubber Co., New York City, was elected to head the Association during 1951. NEMA's retiring president is Charles T. Lawson, vice president, Kelvinator Division, Nash-Kelvinator Corporation, Detroit.

Five vice presidents were also elected at the meeting held at Haddon Hall, Atlantic City, N. J., November 14-16. They are J. H. Jewell, vice president, Westinghouse Electric Corp., Pittsburgh, Pa.; Arthur A. Berard, president, Ward Leonard Electric Co., Mount Vernon, N. Y.; J. F. Lincoln, president, The Lincoln Electric Co., Cleveland, Ohio; R. E. Murphy, vice president in charge of sales, I-T-E Circuit Breaker Co., Philadelphia, Pa.; and Alan F. Sheldon, vice president and general manager, Kennecott Wire & Cable Co., Phillipsdale, R. I. L. G. Hall, president, Stackpole Carbon Co., St. Marys, Pa., was elected treasurer.

Neece heads appliance division

B. C. Neece, vice president, Landers, Frary & Clark, New Britain,

E. B. DERR



C. W. HIGBEE, NEMA PRESIDENT

Conn., was elected chairman of NEMA's Major Appliance Division. The new vice chairman is Reese Mills, assistant manager of appliance sales,



B. C. NEECE

Westinghouse Electric Corp., Mansfield, Ohio.

New section officers

New chairmen and vice chairmen of the appliance sections of NEMA were elected as follows:

Range Section: Chairman, G. L. Rees, manager of sales, Gibson Refrigerator Company, Greenville, Mich-

igan; Vice Chairman, H. J. Holbrook, manager of range and water heater sales, Norge Division, Borg-Warner Corporation, Chicago, Ill.

Water Heater Section: Chairman, C. A. Bemis, vice president, Sepco Corporation, Pottstown, Pa.; Vice Chairman, Stanley Wolkenheim, sales supervisor, water heater division, A. O. Smith Corporation, Kankakee, Ill.

Farm & Home Freezer Section: Chairman, B. G. Sanderson, general sales manager, Deepfreeze Appliance Division, Motor Products Corporation, North Chicago, Ill.; Vice Chairman, C. K. Rieger, manager, household refrigerator division, General Electric Company, Bridgeport, Conn.

Refrigerator Section: Chairman, E. B. Derr, product specialist, refrigeration sales, International Harvester Company, Chicago, Ill.; Vice Chairman, W. F. Ogden, manager of products, Hotpoint, Inc., Chicago, Illinois.

Housewares Section: Chairman, Gordon T. Ritter, director of sales, electric housewares division, Arvin Industries, Inc., Columbus, Indiana; Vice Chairman, R. M. Oliver, general merchandising manager, Landers, Frary & Clark, New Britain, Con-

B. G. SANDERSON



necticut. (Mr. Oliver was also named chairman of the sales promotion committee.)

Household Sink Units Section: Chairman, M. M. Feaman, manager, water heater and kitchen utilities department, electric appliance division, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania; Vice Chair-



G. T. RITTER

man, C. J. Enderle, manager, electric sink and cabinet division, Westinghouse Electric Corporation. (This Section deals with both home electric dishwashers and food waste disposers.)

Looking at 1951 production

In evaluating production for 1951, B. C. Neece, newly elected chairman of NEMA's Major Appliance Division, stated "The needs of our nation, as the hope of the world and a key democracy in the United Nations fight against world aggression, must come first. Our industry's factory facilities, engineering and manufacturing abilities, and labor forces skilled in the mass production of highly technical precision products are today, and will continue to the full extent needed in the future, serving our country's needs vigorously."

Decreasing consumer demand?

Neece continued "It is the consensus of our members that decreased consumer demand for major appliances will be a greater factor in limiting 1951 production than will the diversion of materials to preparedness needs. . . . It would appear that all branches of our industry, particu-

larly those at the retail level, will have perhaps greater need than ever for strong and effective sales power.

"We must sell hard in 1951 if we are to keep the living standards and the national income of our people high so that the increased taxes already imposed may be available to pay the increasing burden of a semi-war economy.

"It is important that, within the limits of this economy, sufficient ma-

NEMA Board of Governors

Elected for a three-year term:

James M. Bennan, president, Jefferson Electric Company
J. W. Corey, president, Reliance Electric & Engineering Company
W. S. Kendrick, president, The Victoreen Instrument Company

Re-elected for the same term:

Geo. P. F. Smith, president, Norge Division, Borg-Warner Corporation
James J. Nance, president, Hotpoint, Inc.
C. W. Higbee, manager, electric wire & cable dept., U. S. Rubber Company
L. G. Hall, president, Stackpole Carbon Company
D. S. Funk, president, Sangamo Electric Company
J. H. Ashbaugh, vice pres., Westinghouse Electric Corp., Mansfield, O.
H. A. Hudson, manager, electrical division sales, Wagner Electric Corp.
J. F. Lincoln, president, The Lincoln Electric Company
F. F. Look, president, Allen-Bradley Company
R. R. Titus, president, Synthane Corporation

terials be made available to all manufacturers for three specific reasons: (1) to minimize the dislocation of labor in its transition from civilian to defense production; (2) to maintain a constant, though perhaps limited, flow of products through all retailers, large and small, who, in total, form a great force in stabilizing the production of our factories and shouldering a sizeable share in the nation's tax burden; and (3) to maintain the growth of the newer appliances which contribute to our ever-rising standard of living.

"It should be a source of tremendous pride to everyone associated

with the electrical manufacturing industry to realize that this industry, by virtue of its great technological strides, utilizes its manpower and materials with impressive efficiency.

"So marked is this high degree of efficiency," concluded Neece, "that it should be possible for our industry to meet the civilian needs of the American families at home, and the needs of our Armed Forces, both at home and abroad, with a minimum of hazard to the availability of consumer electrical products and a maximum effectiveness in meeting the needs of our nation's preparedness program."

Water heater promotion plans

Advertising and promotional plans for 1951 were approved by the Water



M. M. FEAMAN

Heater Section of NEMA. Electric water heaters will again be promoted to the building field through architectural and builders publications, with the advertising campaign featuring testimonials of actual builders who are installing electric water heaters in the new homes they build. The advertising to electric appliance dealers will point to the tremendous market existing for the water heaters.

New home freezer manual

A new manual, "The Home Freezer Way to Better Home Management," prepared by authorities in the home economics field, will feature the advertising program for 1951 of the Farm and Home Freezer Section. In order to further carry on its selling efforts, this Section will use this new

manual to continue to promote the installation of home freezers in schools for the teaching of this modern method of food preservation. An advertising campaign will be carried in publications reaching home economics teachers. An additional campaign will consist of advertisements addressed to school boards and school management officials in publications

reaching those fields; these will feature testimonials from schools now having home freezer installations and using them to advantage.

1951 range promotion to feature a "job of selling"

The Electric Range Section also approved the long range advertising and promotional plans for 1951. It

was the feeling of a majority of members that, barring unforeseen developments, 1951 will still require "selling" on the part of the electric range industry, despite material shortages resulting from the Defense Program.

During the past decade, the number of homes installing automatic electric ranges has shown a phenome-

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Electrical trends

a message before the National Electrical Manufacturers Association annual meeting

by Charles T. Lawson • VICE PRESIDENT, NASH-KELVINATOR CORPORATION, DETROIT

POPULATION trends, extension of power lines, new product development and better wiring all point to a vast and continuing expansion of the electrical industry over a long period of time.

Market potentials greater than population increase

While population is increasing, the number of families is growing at an ever faster rate because of the trend to smaller family units. Also, people are living longer and enjoying better health, with the result that a larger percentage of older people are maintaining separate homes, apart from their children.

To the electrical industry this means that the market for its products will be considerably larger than would be indicated by population increase figures alone.

Competition linked with Association cooperation will enhance the contribution the electrical industry can make to better living and to a better America in the days ahead.

Every move every one of us makes to sell electrical living, to sell adequate wiring, to sell electricity as the best power supply, means more business for all of us and for each of us.

NEMA's centralized statistical department prepares invaluable industry data, yet protects the confidential nature of individual company figures. Its committee on codes and standards,

and its National Adequate Wiring Program, makes possible economy and uniform policy.

The lack of adequate wiring has more to do with delaying growth of



C. T. LAWSON

electrical service to the public, and therefore the sale of electrical products, than any other element. It involves not only manufacturers of appliances which use electricity, but also those who make the equipment for generation, transmission and distribution, as well as those who manufacture wire, cable, and all other types of wiring materials.

Obviously, manufacturers of wiring devices, armored cable, non-metallic sheathed cable, knife and enclosed switches, could not, any one of them alone or jointly, afford to

finance an adequate wiring program on the scale which seems necessary. Only financial support from all divisions of the electrical industry makes such a program possible.

Trends indicate double present use of electricity

Our Association will play an increasingly important role in realizing the great potential of the electrical industry in the days ahead. According to industry trends, this potential by 1960 could mean national public utility generating capacity nearly double today's figure of 69,000,000 kilowatt hours, and average home consumption more than double today's figure of 1700 kilowatt hours.

Analyzing the industry market for the next decade points to a general rise in the educational level of our adult population, due to longer schooling and widespread use of such means of mass communication as radio, television, newspapers, books, films and magazines.

The net result of this is that our market of 1960 will be more standardized in its beliefs, behavior and tastes. This means that our market will become more homogeneous, and it thus becomes increasingly important that we be right in the statistics upon which we base the production of our products, and that we be right in the codes that are established affecting the electrical industry.



Following the general session meeting, luncheon was held in the Netherland Plaza's Hall of Mirrors.

Winter stove convention and management conference

Institute of Cooking and Heating Appliance Manufacturers sponsors study of combined peace and defense product production problems

A SERIOUS-MINDED group of heating and cooking appliance manufacturers met at the Netherland Plaza Hotel in Cincinnati, December 4, 5 and 6, to help formulate a plan for unified industry cooperation with the defense production program and to study the many problems currently facing all producers of metal products.

Included in the discussion were problems pertaining to mandatory controls, material shortages, personnel problems pertaining to both plant production and management jobs with top government organizations, a study of the problems incident to conversion, and a thorough study of the possibilities for cooperating in working out the problems of individual members and the industry as a whole.

It is quite evident that individual opinions vary as to the effect of material shortages and conversion re-

quirements upon the production of appliances for civilian use during the early months of 1951. Some manufacturers seem to feel that the effect of credit restrictions may be felt more severely than the necessary reduction in many important materials. Others are of the opinion that if both materials and labor are available for a high rate of production, the demand for major home appliances will continue for some time. In this connection, an interesting poll of gas range manufacturers was taken in one of the meetings. Producers were asked to indicate their best "guesstimate" of production during January, February and March as compared with September 1950. The average of these estimates showed a production of 80% for January, 70% for February, and 63% for March. With a very high rate of production during late 1950, these figures would not indicate the extreme pessimism expressed in

some manufacturing circles. They do, of course, express the feeling of this one group that production may start tapering off the first of the year, to make way for accelerated production of defense materials.

Walter Muhlbach heads ICHAM

The newly-elected president of the Institute is Walter F. Muhlbach, recently appointed director of distribution and research for the Florence Stove Company, Gardner, Massachusetts. The new president is well known for his work in the field of marketing analysis and research.

Besides his new duties as president of the Institute of Cooking and Heating Appliance Manufacturers, Mr. Muhlbach is a director of the Gas Appliance Manufacturers Association and of the Liquefied Petroleum Gas Association; chairman of the Domestic Gas Range Division and Gas Range Marketing Committee of



J. L. MOORE

G.A.M.A.; and chairman of the Marketing Committee of the L.P.G.A. He is also active on a number of committees for the American Gas Association and the National Association of Manufacturers.

Boeschstein suggests

"pay-as-we-go"

The keynote address before the conference was delivered by Harold Boeschstein, president, Owens-Corning Fiberglas Corporation, Toledo, Ohio. Following are a few quoted comments from his address, entitled "Business Risks in a Mobilized Economy".

"Businessmen must face the fact that this country is not dealing with occasional crises of short duration but rather we must adjust our attitudes and plan our affairs in the ex-

pectation that we have a long row ahead to preserve the security of our country. This will have a profound effect, of course, upon our economy and upon the obligations and the thinking of all our people . . ."

"This country faces two major risks, first that we do too little too late at the risk of Communist aggression from without, or, secondly, that we attempt too much too fast without clear thinking and purpose and by so doing overtax our resources, stray from the path that has made us industrially strong and vitiate the self-reliance, enterprise and faith of our people through excessive and destructive Government control and regula-



PRESIDENT MUHLBACH

tions, through a creeping planned economy that leads to nationalization, and socialism, and ultimately Communism by absorption from within. It will take understanding and a spirit of cooperation greater than we have had in any national emergency heretofore to avoid these extreme risks . . ."

"The outpouring of more payroll dollars for both war and civilian production will create buying power out of proportion to the goods available for civilian purchase. This creates a serious inflationary pressure. Savings bonds, coming due in substantial amount in 1951, potentially add to this inflated individual buying power. However much they may hurt some businesses temporarily, credit



HAROLD BOESCHSTEIN

limitations are the least hurtful restrictions and are necessary. But I am convinced that if we are to preserve the integrity and the buying power of the dollar in years ahead, we must pay much higher taxes and adopt a 'pay-as-we-go' policy. By doing so we will draw off excess spending power that would otherwise surely defeat any price controls and inflate war costs . . ."

"At the present time there is confusion in Washington both as to policy and administration of the Defense Program. Already there are ten or more agencies in addition to the military services that have been set up to handle certain defense functions. Some of them are in conflict. Their relationship, one to the other, is not clear. We are long on debate and short on clean-cut, objective decision

ALDEN P. CHESTER



A. B. RITZENTHALER



and action. This is a price we pay for the democratic form of government. It will take able men and experienced administrators in the Government to bring order out of the confusion. We have some good ones; we need many more. It is not unlike the transition period at the start of World War II.

"All of us in industry can help by our sympathetic understanding of the problems and of their long-range implications, by our willingness to carry our full share of the necessary war production burden even at the cost of civilian customers. We can help if we accept our obligation to actively interest ourselves in politics and in maintaining contact with our representatives in federal, state and local government so that legislative action may be well considered, regulations better administered, enterprise preserved, and controls kept to a minimum. These are the problems of our times. They challenge our courage and faith and resourcefulness. We will finally win peace if we measure up to the challenge."

Controlled materials plan expected

In a comprehensive "Report from Washington", Pauline B. Dunkel, executive secretary of ICHAM, brought the Institute membership up to date (*as of Tuesday, December 5, 1950*) on rules, regulations, curtailments and industry trends.

"It is extremely difficult", said Mrs. Dunkel, "for anyone in the stove business to forecast the trend in sales for 1951. It is certain that the industry will take on a large volume of military contracts, thereby reducing available capacity for range and heater production. At the same time, the drastic effects of recent NPA limitations on civilian use of aluminum, copper, cobalt, and zinc will be felt . . ."

"As the drain on scarce materials becomes greater for the military program and government stockpiling, it is generally believed that NPA will have to revert to a more orderly method for channeling distribution with the result that a new version of the World War II Controlled Materials Plan is likely. If and when such a plan is instituted, it is the

Institute's opinion that cooking and heating appliances will be high on the list of essential civilian goods.

"In reviewing other phases of the government's current program, Regulation W, the consumer credit order, has cut sales sharply, both in the high priced deluxe range lines and in the lowest priced coal and oil cooking stove lines. This was the effect desired by the Government and no liberalization of the credit order can be expected in the foreseeable future. As a matter of fact, there have been

ICHAM Officers for 1951

President: Walter F. Muhlbach, director of distribution and research, Florence Stove Company

Executive Vice President: Bolling Jones, Jr., president, Atlanta Stove Works, Inc.

Secretary-Treasurer: C. M. Dunn, vice president and general manager, Estate Heatrola Division, Noma Electric Corporation

Vice President, Meetings: Sheldon Coleman, executive vice president, The Coleman Company, Inc.

Vice President, Memberships: James Mitchell, president, Grand Industries, Inc.

Vice President, Publications: A. B. Ritzenthaler, vice president, The Tappan Stove Company

many indications that after the first of the year, additional products will be made subject to credit regulations . . ."

"The second step in ESA's price and wage control program may be a series of conferences with groups of larger manufacturers in several industries and the labor unions in those industries, to solicit voluntary cooperation in holding price and wage demands down. Most informed observers hold little hope for the success of this voluntary program of price and wage stabilization. In the event of its failure, general price and wage controls may be unavoidable by summer, especially if the military situation continues to deteriorate."

According to the Institute's secretary, the stove manufacturing industry should be able to meet all essential demands for its products in the

first quarter of 1951. Forecasts beyond that period must depend solely upon the availability of steel, aluminum, cobalt, copper, and nickel, required for production of these units.

Government procurement discussion

A speech on the subject of "Government Procurement Policies and Procedures", prepared for delivery by Brigadier General A. D. Hopping, U.S.A., Chief of Supply Div., QMG, was read by J. L. Moore, special assistant to the vice-president, The Coleman Company Inc., Wichita, Kansas. In his prepared speech, Gen. Hopping stated "To explain the process of procurement as handled by the Quartermaster Corps, there are certain fundamentals which we must consider. One, procurement in time of peace, or limited mobilization, and second, in the case of all-out war . . ."

"The traditional American policy of invitations for bids and award to the lowest responsible bidder whose bid is responsive to the invitation is still in operation. I should like to invite your attention to the fact that even negotiation under this public law for a military requirement is conducted with several producers, under competitive conditions.

"Under all-out mobilization this would not ordinarily be the method used. An order would be placed on a firm and negotiation would be between that company and the Government only . . ."

In an additional reference to procurement policy of the Quartermaster General, it was stated, "It has been, and still is the policy of the Quartermaster General to employ planned procurement practices which will afford the lead time necessary for industry to establish production which will keep the supply pipeline flowing. There are, however, occurrences which are beyond the control of the Quartermaster General, apparently even beyond the control of the nation, which force deviation from normal lead times in procurement. The reasons for such deviations are self-evident . . ."

Items of interest to the cooking and heating appliance manufacturer

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Paint, varnish and lacquer group holds 62nd annual convention

THE 62nd annual convention of the National Paint, Varnish & Lacquer Association was held in San Francisco, California, November 15 to 18 inclusive, with convention headquarters at the Fairmont Hotel.

In addition to regular Association activities, the country's emergency situation occupied a major part of convention deliberations. Included were reports by Government officials, and discussions related to production problems and raw materials shortages.

On Thursday, November 16, the outline of Association activities included feature programs such as "Clean Up—Paint Up", "Paint Power", and "Color". The Association's cooperative advertising cam-

paign stressed a "hard-hitting" program designed to tell the story of industrial finishes and trade sales.

On Friday, November 17, which was designated as National Security Day, key Government figures covered the present emergency situation from their respective viewpoints. Included in the group of speakers on Government subjects were a speaker for NPA; Arthur W. Motley, assistant director of U. S. Employment Service, who spoke on "Manpower Problems in Relation to Present Defense Activities"; The Hon. Karl R. Bendetsen, assistant secretary of the Army; and Willis S. Macleod, director of Standards Division, Federal Supply Service, General Services Administration,

who spoke on "The Role of the General Services Administration in Federal Supply".

NPA policy

NPA policy was covered briefly and concisely by Charles C. Concanon when he indicated the policy to be "emphasis upon defense needs; capacity expansion and increased total production as rapidly as possible; controls only to the extent necessary; minimum disruption of the civilian economy; consultation with industry and trade."

How long must we have a National Security Program

In discussing the question of how long the National Security Program

"Clean Up—Paint Up—Fix Up" was the slogan for campaigns in 3000 communities during 1950; goal for 1951 is 4000 communities. In 1950, approximately 5,500,000 school children participated, as did 6362 volunteer workers. This program, which had its beginning in St. Louis in 1912, is now said to have a population cooperating force of 72,500,000.





Cooperative advertising campaign, started in 1949, has been stepped up to include three campaigns for 1951, one on industrial finishes, one on trade sales campaign, and a maintenance campaign. During 1951 there will be 102 advertisements on industrial finishes.

of the United States must be continued, the following statement was made by Assistant Secretary of the Army Bendtsen: "We are committed to a program of military strength for the indefinite future, and this, gentlemen, poses the unprecedented problem with which our planners today are confronted: We must so design our plans for the expansion of our own armed forces and for the support of the military establishments of the free nations, so as to provide positive assurance that our civil economy can and will support and maintain these forces without material reduction, for the indefinite future—for as long as our way of life continues to be threatened."

Suggestions on manpower problems

In his address, "Manpower Problems in Relation to Present Defense Activities", Arthur W. Motley said "We have a manpower problem at present, and we will have a more serious manpower problem as the defense program gains momentum. A few statistics will show why this is so:

"In August 1940, nonagricultural employment stood at 38.6 million, and there were 8.7 million unemployed. In August 1950, nonagricultural employment was 54.2 million,

the largest in our history, although it fell off seasonally in September. Unemployment was 2.3 million, having dropped from 4.7 million in February of this year. Unemployment insurance claims for completed weeks of unemployment declined from a weekly average of 1,700,000 in May to 372,000 in September, nearly half. Between May and July labor market areas with a tight or balanced labor supply increased from 12 to 19, and the number is increasing. There are now only 2 major areas with heavy labor surpluses. Scarce labor supply and important

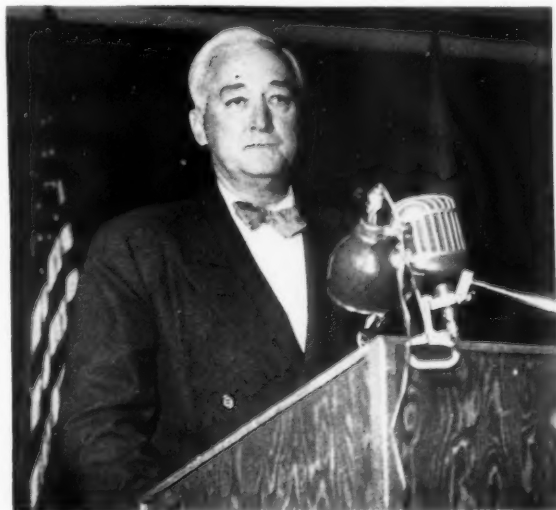
occupational shortages exist in about a third of our major production centers. To date, this labor market development is largely concentrated in the North Central States around the Great Lakes, in the Southwest, and on the West Coast. But it is spreading rapidly to other sections of the country. . . ."

In covering the "long-term" manpower problems involved under the defense program as presently authorized, Mr. Motley said "The manpower programs which are undertaken should be based on the premise that full employment, with attending skilled labor shortages, will continue for an indefinite period of time. I would suggest that these plans be based on two simple points:

1. The potential possibilities of the present work force of the employer.
2. The potential additional work force available in the area where the employer is located."

In referring to the present shortage of skilled workers in many occupations, the speaker cited as an example that "... employers are currently seeking over 33,000 workers in more than 1,000 skilled, professional and technical occupations, outside their own communities, through the facilities of the United States Employment Service. *The most serious skill shortages are in metal working occupations, such as machinists, tool and die makers, tool designers, and electricians, mechanics and repairmen.*

In his address before the annual meeting, Joseph F. Battley, Association president, asserted that "1950 has been a wonderful year for the paint, varnish and lacquer industry."





Left: E. A. Long, regional vice president of the American Public Relations Association, presenting Achievement Award to President Battley.



Right: Robert R. Gros, of Pacific Gas and Electric Company, presented a stirring address entitled "Right Needs Might."



Above: Leo Cherne, exec. secretary, Research Institute of America.

Below: Hon. Karl A. Bendetsen, Assistant Secretary of the Army.



In professional classifications, the shortages are chiefly among engineers and draftsmen. These shortages have increased in the last three months, in a period in which there has been relatively limited production for military purposes. . ."

Specific suggestions offered by Mr. Motley included the following:

"An analysis of the local area's potential work force, made up primarily of available semi-skilled and unskilled workers, women who were formerly in the labor market, young folks who are entering the labor market for the first time, older workers, and physically handicapped, and personnel practices which permit effective use of such workers, will help in meeting manpower requirements.

"Developing the present work force and the full use of the potential additional work force in the community where the employer's facility is located may seem so very simple but there is no better formula to make the manpower budget stretch to meet our total manpower requirements."

1950 — a wonderful year

"This has been a wonderful year for the paint, varnish and lacquer industry", stated Joseph F. Battley, Association president, in his address and report before the 62nd annual meeting. . .

"This is what we have done. And in so doing we rolled up new sales

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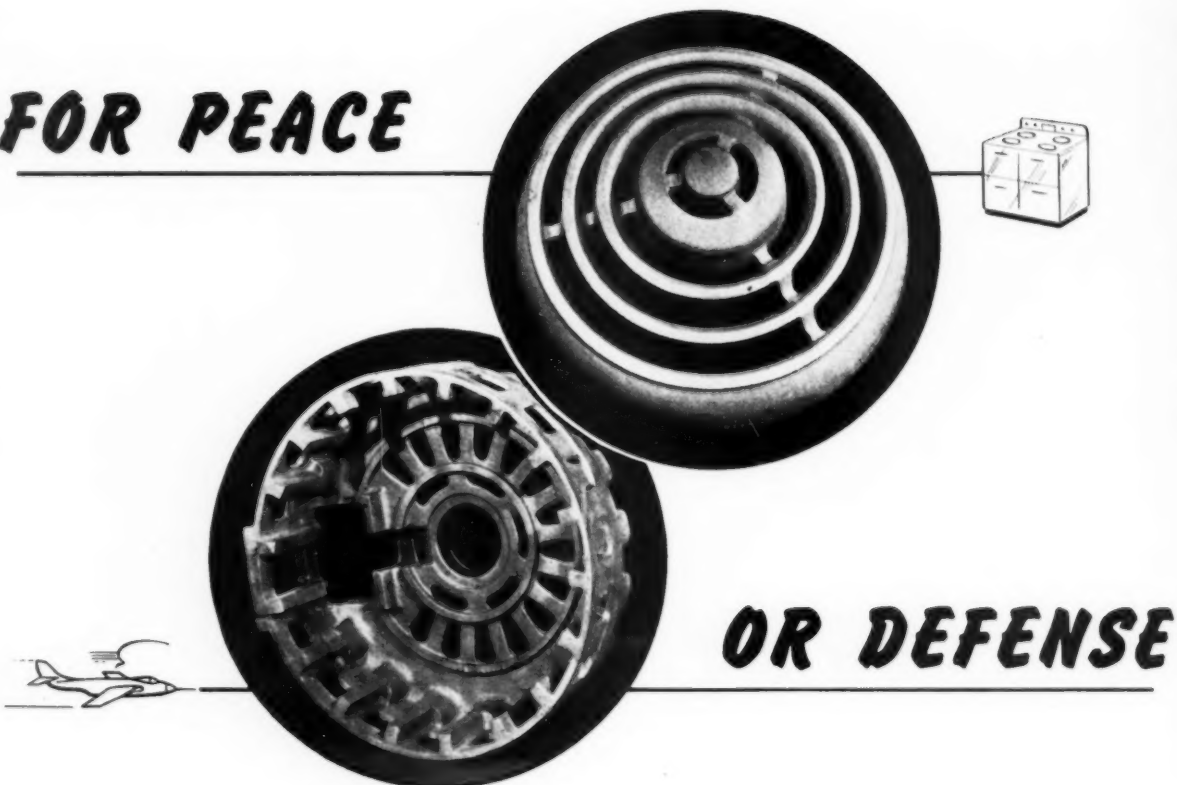


Above: A. E. Horn, presiding over national advertising presentation.

Below: Arthur W. Motley, ass't director, U.S. Employment Service.



FOR PEACE



OR DEFENSE

ACME HAS THE EXPERIENCE

ALTHOUGH the bulk of Acme's production during recent years has consisted of peace-time products, much of it for the appliance manufacturers, we have never discontinued defense production.

During all this period, both during and since World War II, we have been continuously producing precision castings for aircraft, and for numerous complicated ordnance parts.

ACME OF CHICAGO offers a complete casting service—for aluminum alloy permanent mold and semi permanent mold castings and aluminum and magnesium alloy sand castings.

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NEWS

WESTINGHOUSE APPLIANCE DIV. TO LOCATE IN MERCHANDISE MART

The space formerly utilized by the office of the building of The Merchandise Mart will be occupied by Westinghouse Electric Corporation, which has leased a total of 45,000 square feet on the second floor, reports Wallace Ollman, Mart general manager.

Westinghouse will consolidate sales and regional offices in the Mart on March 1. The space, to be extensively remodeled and completely air conditioned, will house the company's mid-west appliance, air conditioning, and lamp divisions, as well as the engineering staff.

The Merchandise Mart now maintains its office of the building on the 14th floor (room 1449), with plans being considered to move the facility to a central location on the main floor early in the fall of this year.

10-MONTH SHIPMENTS OF GAS WATER HEATERS PASS PEAK YEAR

Shipments of automatic gas water heaters during the first 10 months of 1950 surpassed the all-time record year of 1947 when total industry shipments were 1,800,000, according to a report of the Gas Appliance Manufacturers Association. In the 10-month period 1,929,200 units were shipped and this was 60.6% greater than during the same period of 1949.

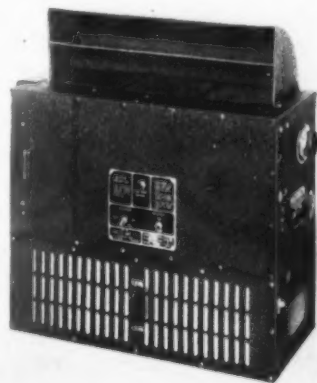
Edward R. Martin, director of statistics and marketing for GAMA,

finish JANUARY • 1951

stated that October shipments amounted to 217,300 units, and were 40.9% greater than the 154,200 units shipped during October, 1949.

GASOLINE-BURNING HEATER FOR USE BY ARMED FORCES

A small gasoline-burning space and transport heater, developed for the Armed Forces, is said to be the an-



swer to a number of Military and semi-Military heating problems. Measuring 11" x 21" x 24", the unit is capable of producing 60,000 Btu per hour and circulating heated air—fresh or recirculated—at 500 cubic feet per minute, enough to heat an average 5-room house. It is being manufactured by Hunter Manufacturing Co., of Cleveland, Ohio.

Equipped for radio interference suppression, it is being used extensively in radar and radio vehicles and shelters, according to the report.

Some of the Military uses in which the heater may be used to advantage include: in vehicles equipped for map production, in mobile dark rooms and photographic laboratories, instrument and repair shelters, hospital tents and shelters, quartermaster vehicles, and arctic shelters.

Thermostatically controlled, the heater is claimed to average just a little more than one-half gallon of fuel consumption per hour. When ventilation without heat is desired, the unit's blower system may be used to circulate fresh air throughout the vehicle or structure in which it is installed.

G-E'S WILSON HEADS OFFICE OF DEFENSE MOBILIZATION

Charles E. Wilson, president of General Electric Company, has been named by President Truman to head the new Office of Defense Mobilization. (Ralph J. Cordiner is the newly elected president of G-E.)

In his new position, Mr. Wilson will be responsible for directing "all the mobilization activities of the government, including production, procurement, manpower, transportation, and economic stabilization."

EXPECT 10,000 TO ATTEND JANUARY HOUSEWARES SHOW

With the demand for space at an all-time high, the 1951 National Housewares and Home Appliance Exhibit is expected to play host to more than 10,000 buyers who will see "the greatest concentration of housewares and appliances ever assembled," according to A. W. Buddenberg, executive secretary, National Housewares Manufacturers Association.

The 14th national housewares show will be held at the Navy Pier, Chicago, from January 18 through 25.

OCTOBER SETS NEW HIGH FOR HOUSEHOLD WASHER SALES

Factory sales of standard-size household washers in October broke all records, according to industry-wide figures announced by the American Home Laundry Manufacturers

Association, totalling 439,924 units and edging past the previous high of 433,919 established in September, 1948, by 1.4%.

October washer sales were 3.7% more than 424,043 in September and exceeded 333,728 in October, 1949, by 31.8%.

Sales of tumbler dryers in October totalled 28,882 units, compared to 31,399 in the preceding month, down 8%, and 83.3% higher than sales of 15,760 in October, 1949.

Factory sales of ironers in October aggregated 47,500, an increase of 14.7% over 41,400 in the preceding month, and 31.8% more than 36,045 in October, 1949.

"BETTER ROOMS" COMPETITION OPEN TO FINISH READERS

The *Chicago Tribune* has announced the opening of its 5th worldwide "Better Rooms" competition. Closing date of the \$25,000 interior decorating and furnishing contest is February 19, 1951.

One hundred forty-five cash prizes ranging from \$100 to \$1000 each and totalling \$25,000 will be awarded for prize-winning designs in the following seven classifications: living room, living-dining room, adults' bedroom, child's bedroom, kitchen, and extra room. Each contestant may

enter as many of these divisions as he chooses. First prize in each classification is \$1000.

Anyone, except employees of the *Tribune* and its subsidiaries, members of the Jury of Awards, may enter the contest. A copy of the rules may be obtained by writing to *finish*.

BRECKENRIDGE NAMED HEAD OF AUTOMATIC WASHER

Frank Breckenridge, for the past two years executive vice president,



has been elected president of Automatic Washer Company, Newton, Iowa, succeeding the late W. Neal Gallagher.

Originally associated with Automatic in 1929, Breckenridge had later

experience in the merchandising field through association with Westinghouse and International Telephone and Telegraph. He returned to Automatic in 1946.

He is also a member of the executive committee and chairman of the engineering and research committee of the American Home Laundry Manufacturers Association.

CHEMICAL DEVELOPMENT FOR PROTECTIVE COATINGS INDUSTRY

A new baking-type coating intermediate that is expected to form a versatile base for a new field of protective coatings has been developed by General Electric's Chemical Department. Designated as R-103, it is said to combine outstanding chemical resistance with flexibility and heat resistance.

Field tests now being conducted show that the unusual properties of R-103 make it especially useful in coatings for drums, food containers, tank cars, chemical tanks and process equipment, and appliances, the announcement states.

REYNOLDS METALS TO INCREASE ALUMINUM CAPACITY BY 1952

Two hundred million pounds of increased aluminum capacity will be brought into production by Reynolds

Among the 65 members of the Canadian Ceramic Society attending that group's fall meeting, November 9, in Toronto, were: Front row, left to right — Jim McCallum, Stamped & Enamelled Ware; Austin Kelly, Guelph Stove; Les Snelling and M. Reagan, Stamped & Enamelled Ware; Mark Parker, Moffats, Ltd.; and Wm. Craig, Stamped & Enamelled Ware. Back row — H. D. McLaren, Ferro Enamels (Canada) Ltd.; Marcelo O. Balina, of Buenos Aires; J. K. Hossack, Ferro Enamels; T. Fenton, General Steel Wares; K. M. Hossack, Ferro Enamels; Walt Nichols and Wilf Fuller, General Steel Wares; M. P. Durrant, Frigidaire Products; and Fred Bidwell, Canadian Westinghouse.



Metals Company before 1952, it was announced recently by David P. Reynolds, vice president in charge of sales. This increased quantity of aluminum

represents Reynolds' contribution toward meeting the increased Military needs for the metal, it was stated.

NEW DEEPFREEZE PLANT NEARING COMPLETION



Shown above is a view of the new plant of the Deepfreeze Appliance Division of Motor Products Corpora-

tion being erected on Skokie Highway at North Chicago, Illinois.

The 75-foot-long 30,000 gallon

bullet-nosed tank shown in the foreground will be used to store propane gas required for operation of the drying ovens on the roof of this new 236,000-square-foot refrigerator plant.

By erecting the drying ovens overhead, where they rest directly on the regular building trusses, Austin Company engineers were able to increase the ground floor space available for other manufacturing functions by approximately 10,000 square feet. Corrugated asbestos has been used above and below the continuous sash on this side of the building to facilitate expansion.

HOLL NAMED PRESIDENT OF SEEGER REFRIGERATOR

At the annual meeting of the board of directors, John S. Holl, executive vice president, was elected president of Seeger Refrigerator Company, succeeding Walter C. Seeger who is now chairman of the board.

CANADIAN PROTECTIVE COATING CONFERENCE, MARCH 16

The Protective Coatings Division of The Chemical Institute of Canada will hold its 5th annual regional conference at the Royal York Hotel, Toronto, on Friday, March 16, according to T. H. G. Michael, Division chairman.

NEW PRIZE CONTEST FOR PAPERS ON RESISTANCE WELDING

The Resistance Welder Manufacturers Association has announced the opening of a new contest for original papers dealing with resistance welding subjects. The contest will extend until July 31, 1951.

Applicants' papers may be devoted to re-design or improvement of present design, research, or new applications of resistance welding. A total of \$2250 will be used for cash awards for the best entries.

For the best paper from an industrial source, consulting engineer or private or governmental laboratories \$750 will be awarded. Awards of \$500 and \$250 have been set aside for second and third prizes in this classification. \$300 will be given for

NESCO UNVEILS NEW ROASTER WITH SPECIAL CABINET



Nesco, Inc. recently brought out a new electric roaster which the company believes is the answer to the problem of housewives who need to prepare "oven-type meals with only a few seconds in the kitchen."

When the housewife adjusts the temperature control and automatic

timer, the unit turns itself on and off at the exact time desired. The new roaster, designed by Raymond Loewy, is available either by itself or with the special cabinet shown. Drawer space in the cabinet provides space for the roaster's accessories.

a paper emanating from a university source, either an instructor, graduate student, or research fellow. The second prize in this category is \$200.

For the best paper from an undergraduate student, an award of \$250 will be made. (For contest rules write to finish.)

CENTRAL ENAMELERS HEAR CURTAIN WALL STORY



At speaker's table, left to right, are: Above—Wm. Wenning, Ceramic Color; Robert A. Weaver, Ferro Enamel; Joseph Lacey, guest speaker; Norman Stolte, Enamel Products. Below: M. Bozzin, Ferro Enamel; John Schwartz, Westinghouse; R. H. Hammell, Tappan Stove; R. A. Weaver, Jr., Bettinger; Dana Chase, finish; and G. H. Smith, Pemco.



At the December 3 meeting of the Central District Enamelers Club the featured speaker was Joseph Lacey, of Eero Saarinen & Associates, one of the country's leading architectural firms. Eero Saarinen & Associates designed the new porcelain enamel curtain wall constructed building of the General Motors Research Laboratory Center, near Detroit.

Chairman of the meeting was N. H. Stolte, of Enamel Products Co., Cleveland, Club president. R. A. Weaver, Jr., president, Bettinger Enamel Corp., Waltham, Mass., whose company produced some of the early porcelain enamel curtain wall as well as a number of other "unusual" porcelain enameled metal products, introduced the principal speaker.

Mr. Lacey traced his company's activity in the curtain wall picture, from one of the early installations, the Science Building at Drake Uni-

versity. By means of slides, he illustrated the principles of curtain wall construction and the requirements for satisfactory applications of the material.

The General Motors Research project includes 30 buildings on 350 acres. "Curtain wall should be as light as possible", said Mr. Lacey—

basically, its prime purpose is to protect the interior of a building from the elements. The spandrel panel is the key to curtain wall. He outlined the following points as important to this type of construction: (1) It should be as light as possible. (2) It should be thin—to save valuable floor space. (3) It must be weather-proof and have insulating value. (4) It should have design flexibility.

In setting up specifications for the General Motors project, there was insistence on flat metal "skins" and color permanence. Mr. Lacey's firm recommended porcelain enameled steel for this purpose. The building surfaces combine porcelain enameled spandrels and Thermopane glass.

The speaker demonstrated two types of "sandwich" panel which may be used. They are composed of two porcelain enameled steel surfaces—(skins) with a low density "core" material. With this type of "sandwich" construction, the center may be weak and light in weight. One type consists of a honeycomb core (impregnated paper), and the other of a solid but very light, low density core material.

Speaking to the porcelain enameling industry, Mr. Lacey warned "The porcelain enameling industry has a job to do. It must accept the challenge and recognize the shortcomings as well as the good points of its material, and if this is done the industry has a great future." In this connection he suggested: (1) don't take chances on inspection, (2) never use lighter than 18 gauge metal, and (3) produce the highest possible quality for architectural use.

EASTERN ENAMELERS PUBLISH NEWSLETTER OF CLUB EVENTS

Newsletter **EEC**

Vol. I No. I
November, 1950

EASTERN ENAMELERS CLUB



5601 EASTERN AVE.—BALTO., MD.

Shown above is the masthead of the first issue of *EEC Newsletter*, published by the Eastern Enamelers

Club under the direction of Editor Howard N. Williams, of Pemco Cor-
to Page 60 →

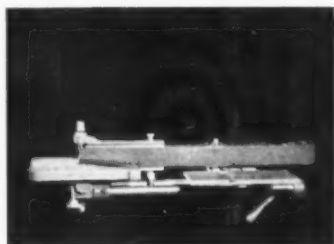
New Supplies and Equipment

A-10. A new pickling agent

A new chemical method for pickling and descaling steel parts has been announced. It is a specialty acid product, in liquid form, containing agents to control base metal attack while aiding in faster pickling or descaling. It is claimed to be more efficient and safer than ordinary acid treatment. Claims include reduced labor costs, more thorough cleaning, and less embrittlement.

A-11. Precision belt contour grinder

A newly announced contour grinder is claimed to be "a practical precision



belt grinder with many special features." Used as an accessory to any drill press, it eliminates need for extra space. Simple mounting on drill press column, the grinder readily swings out of the way when not in use. The contour grinder uses standard 2½ x 60" belts.

This versatile grinder is said to offer hundreds of uses in tool, pattern and die making machine shops, production and woodworking shops. A special interchangeable spindle attachment provides continuous roll form or cylindrical grinding.

A-12. Washable metal marking crayon

A new washable marking crayon that can be used on metal, glass and wood is now available for immediate delivery.

The "Crayoffs" are made with a soap base so that crayon marks can be wiped off with a damp cloth without marring the appearance or sur-

finish JANUARY • 1951

More Information

For more information on new supplies, equipment and literature reviewed here, fill out the order form on this page.

face of the material. They are 4½" long, ½" in diameter, and are available in eight colors—green, yellow, brown, terra cotta, black, blue, red and purple.

A-13. Brush-on tank lining

A new protective coating lines steel and wood tanks and protects floors for most corrosive services. It brushes on, and hardens at room temperature. Cost is reported 1/6 to 1/3 that of conventional linings.

A-14. Lightweight welding torch for thin-gage materials

A new lightweight air-cooled torch for inert gas-shielded arc welding is designed for welding thin-gage materials. The torch, which has a two-position welding head and needs no water cooling, has a maximum current capacity for continuous duty of 75 amperes.

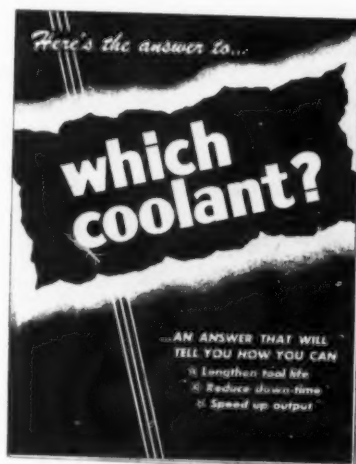
The new unit has a torch head and handle assembly weighing only three ounces. It is equipped with a single cable, carrying both power and gas.

In normal welding operations the torch head is at a 120° downward angle from the handle. By interchanging the collet nut and torch cap, the angle of the torch head can be changed to a 60° backward angle from the handle. This permits making welds in tight spots, formerly inaccessible.

NEW LITERATURE

101. An answer to "which coolant?"

A new booklet contains "case history" information on how one manu-



facturer of heavy equipment licked a tough problem of determining which cutting fluid to use and how to select it. The manufacturer developed a formula based on weighing tool wear,

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FINISH
360 N. Michigan Ave.
Chicago 1, Illinois

Please forward to me at once information on the new supplies and equipment and new industrial literature as enumerated below:

No. _____	No. _____	No. _____	No. _____
No. _____	No. _____	No. _____	No. _____
No. _____	No. _____	No. _____	No. _____
Name _____		Title _____	
Company _____			
Company Address _____			
City _____		Zone _____	State _____

High temperature resistant ceramic coatings . . .

(Continued from Page 35)

high temperature heating is shown. Figure 2 shows the tensile test apparatus. Figures 3 and 4 show respectively the considerable increase in tensile strength imparted to long heated No. 1020 low carbon steel and type 347 stainless steel by ceramic coatings. Figures 5 and 6 show similar data for specimens which not only were long heated but were broken in tension while at temperature. In these cases the overall values are of course rather low, but decidedly in favor of the ceramic coated specimens.

Some rather significant data on the increase in fatigue strength and fatigue life imparted by a ceramic coating are shown in Figures 7-12. Figures 7 and 8 show the test apparatus with a specimen in place. In the remaining figures it is shown that the simple application of a ceramic coating to type 347 stainless steel increased its fatigue strength and fatigue life by a decidedly significant

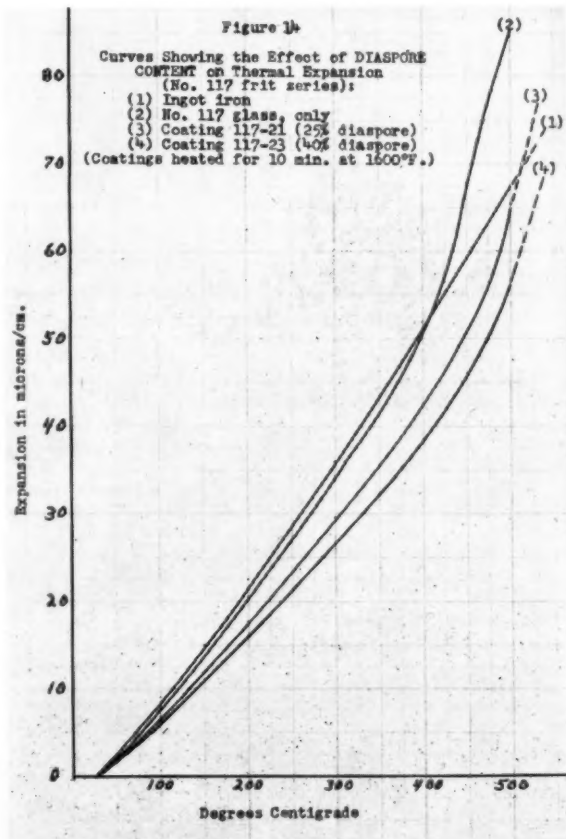
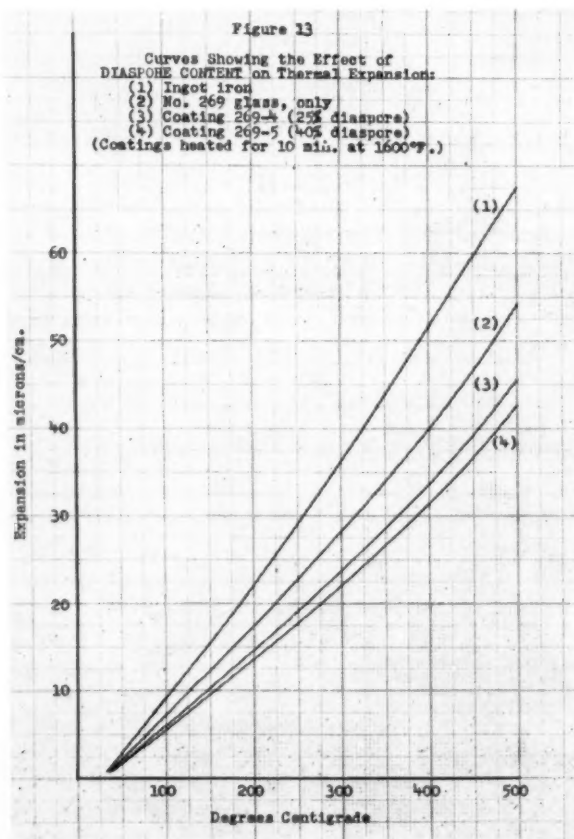
amount. As heating at 1800°F. was continued for 10 and 20 hours the coated specimens retained their superiority but to a diminishing degree.

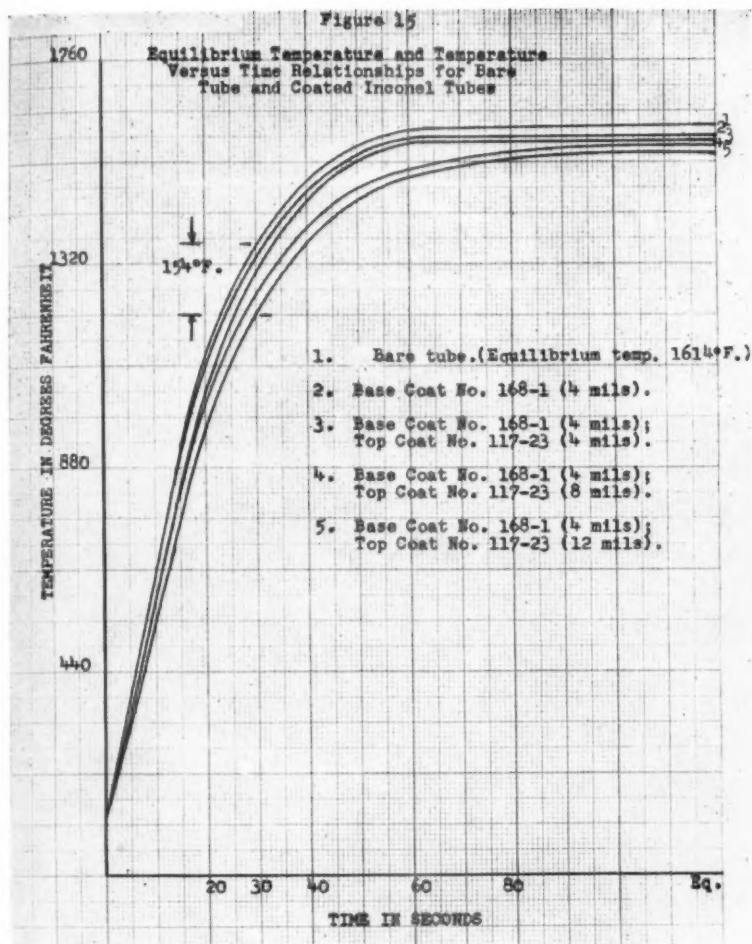
In the case of insulative and radiation reflective crystalline top coatings, it is important that they remain affixed to the base coat without any spalling off and that they do not melt down to a glassy and hence ineffective state. The selection of bonding glass to be used must be carefully made. Its function is to bond together particles of the refractory materials, to assist in bonding the coating as a whole to the base coat and to impart the desired expansion to the coating containing it. Figure 13 shows the thermal expansion curves of a particular bonding glass and those for two top coatings containing it together with 25 to 40% of mill added diaspor, respectively. These curves are referred to that for ingot iron. It can be seen that even the bonding glass alone does not have a high

enough expansion to fit the iron. In Figure 14, on the other hand, it is shown how two diaspor type top coats containing a much higher expansion bonding glass would fit the iron quite well.

The usefulness of a ceramic top coating in one particular application is shown in Figure 15. When an Inconel flame tube was internally coated with a ceramic base coat and a top coat 12 mils thick, the equilibrium temperature difference between its outer surface and that of an uncoated tube was about 75°F. when heating was carried on in a $\pm 1600^\circ$ F. temperature range. On the other hand, the temperature lag or transient state temperature difference at 30 seconds was 154°F. That much difference can be of definite importance in cases where such things as projectiles are operating at temperatures near the melting point of the metal in their motive parts.

The subject matter in this article was selected with a view to furnishing industrial supervisors and man-





agement with some reasonable and forthright basis for evaluating high temperature ceramic coatings in terms of their own problems.

All of the background information which has been accumulated upon high temperature ceramic coatings during the past several years has indicated that there are many useful fields for their application which are as yet untouched.

In any undertaking, either of war or peace, which involves high temperatures, the severity of operating conditions, the reasonable length of

metal life under such conditions, the cost and availability of metals, and the value of the end product will all play a part in considering the usefulness of ceramic coatings. It appears to be reasonably certain, however, that with the decreasing backlog of iron ore and alloying elements and the relative abundance of ceramic materials the use of high temperature resistant ceramic coatings will continue to increase for a long time to come.

Adapted for *finish* from a paper before the PEI 12th annual forum for plant men.

Coordination of fabrication and cleaning means money in the bank

(Continued from Page 28)

emulsions of fats, mineral oils, possibly waxes, etc., it is necessary to have a variety of chemical reactions taking place in the cleaning tank. The fatty portion, of course, should be

acted upon by alkali to saponify. Unsaponifiable materials in the compound must be emulsified to effect complete removal, and held in suspension in the cleaning bath. Here is

where full and complete knowledge of the chemical make-up of the drawing compound is of prime importance.

A spray type washer is almost essential for the removal of pigmented compounds because most pigments are not soluble in alkali and it requires mechanical action of the sprays to remove the pigment.

Emulsification by chemical means

Let's discuss briefly the general theory of emulsification by chemical means. This principle involves basically the use of some coupling agent, which will hold the oil or the material to be emulsified in a permanent water solution. These coupling agents can best be described as materials of such a molecular construction that one end of the molecule is soluble in water and the other end of the molecule is soluble in the oil or substance to be emulsified. In other words, we will call this molecule oil-hungry on one end and water-hungry on the other, so that the molecule will attach itself to the oil and to the water and keep a perfect suspension. Therefore, in order to achieve this suspension it is necessary that we know the oil or the substance which is to be emulsified.

Going on to the subject of plastic compounds, these are losing favor in the industry, but they are resinous materials and it is necessary to know what has an affinity for the particular resin used. It is necessary that the cleaner solution be operated at a temperature sufficiently high to exceed the melting point of the highest melting point ingredient in the compound.


There are other things, of course, to be considered in the cleaning operation, besides the drawing compound to be removed. With the drawing compound a known factor, these other problems become greatly simplified. Therefore, we will go into a few of the more common cleaning problems and their solution.

Solutions for

common cleaning problems

The first common cause of difficulty is warehouse steel. If this is

to Page 56 →



What in fifteen
years has
improved as much

L'Esprit
PORCELAIN D'ART
FABRIQUE
PAR
MAISON

When compared to **MODERN PORCELAIN ENAMEL**

The vast improvement in porcelain enamels in the past fifteen years is of tremendous importance. It is of importance, not alone because of lower production costs, but because of the market potentials opened by these lower costs. The increased flexibility of these MODERN PORCELAIN ENAMELS is also an important factor. Factual data indicates . . . it requires 80% less modern porcelain enamels to cover the same square footage as the enamel used 15 years ago. While steel, and related finishes, have advanced—the coverage cost of MODERN PORCELAIN ENAMELS, per square foot, has actually dropped. These and kindred facts should be of interest to any one with a metal "finishing job." To get all the facts . . . write, wire or phone Pemco.

FREE—A beautifully illustrated Brochure—"How Porcelain Enamel makes your products More Durable, More Beautiful, More Salable." Write NOW for the number you need.

PEMCO CORPORATION
Baltimore 24,  Maryland

Always Begin With a Good Finish

→ from Page 53

suspected, some of the steel blanks may be run through the cleaning cycle without any drawing compound on the blanks. If these do not clean up, then, of course, the steel, not the compound, is guilty.

If the steel is the cause of the difficulty, there are two possible causes: First, the rust preventive that is used on the sheet at the mill; and second, oil rolled into the sheet during the final cold rolled passes. This can be determined by inspecting the steel at various stages of the cleaning operation. If a water-break is noted, upon removing from the rinse before going into the pickle, then the cause is the rust preventive, and it may be necessary to change to a cleaner with greater emulsifying properties, or possibly use a pre-soak emulsion cleaner before going into the alkali.

If the steel appears clean upon removal from the rinse, following the cleaning bath, and it shows water-breaks when it comes out of the rinse, then oil rolled into the sheet is to be suspected. It does not necessarily follow, however, that this is due to oil rolled into the sheet; it may possibly be due to poor rinsing or to a rinse tank that is too dirty. This can be determined by being very, very careful about the rinsing, and if there is still oil on the sheet following the pickle, it undoubtedly is oil that has been rolled into the pores of the metal. This can be overcome by increasing the wetting out properties of the cleaner, and in some cases the condition will be so bad that it will be necessary to pickle and re-clean. By this operation the pickle will remove enough of the metallic surface to open the pores and allow the cleaner to remove the soil in the pores of the metal.

The importance of proper rinsing

There is one other source of trouble that should be pointed out, and that is poor rinsing. Some types of cleaner are rather difficult to rinse, and if the rinse is not kept clean the ware will be dirty and will show water-breaks after the pickle. This is fairly easy to detect, because usually it occurs spasmodically, and usually

later in the day, after the rinse has had a chance to become contaminated. It can be suspected if work shows no water-break coming out of the rinse and shows a water-break after the pickle. This is true of practically all cleaners containing soap. Soap is simply a chemical combination of alkali, usually caustic soda and some fatty oil. This soap film will not necessarily show a water-break, but a pickle will neutralize the alkali and leave the oil film on the surface of the work. This can be ascertained by cleaning up the rinse completely and rinsing carefully; if the trouble disappears, the difficulty was due to poor rinsing properties of the cleaner or to careless rinsing.

We have discussed the question of departmental coordination and the chemical reasons for the relationship of metal forming to cleaning operations. Now let's translate this into the cold figures of dollars and cents.

Saving \$1,500,000 annually in one plant

In order to show an outstanding example, drawn from the automotive industry, of how the problems existing between metal forming and metal finishing are closely allied, we will cite an example of organic finishing in a quantity production plant. In this instance phosphatizing was used prior to final finishing. The example is almost unbelievable, but we actually have the figures in our files, prepared by the cost department of the plant in question. In this particular case, the finishing department had secured authority from top management to insist that the punch press department use only one general type of drawing compound, purely for the selfish reason that it made the cleaning job easier. This went on for a period of approximately two years, with heavy scrap losses, until a survey was made of the whole problem. It was found that by simply changing the type of compound used on one operation alone there was a scrap reduction of from 12.2% to 4.5%, which, based on the cost of the steel itself, was a saving of \$15,000 a month, or \$180,000 a year.

Projecting the reduction in scrap over the entire operation showed a saving of over a million and a half dollars a year in this one plant. No change had been made in the cleaning set-up, and there was no increase in cleaning reject rates. We wish to stress that the actual waste of money prior to the change in the type of drawing compound was due entirely to improper delegation of authority and responsibility, and to the fact that no one had been appointed, nor anyone called in, to study the over-all picture.

The figures cited do not take into consideration the fact that, prior to the change, the tool and die men had to hone the die with four times the frequency that was necessary after the lubricant was changed.

We know of another quite similar instance. We do not have the actual dollars and cents figures, but the improper drawing compound was used in this case because a sub-foreman in charge of actual metal cleaning had removed the nozzles from a spray-type washer, because it made his job of cleaning out the washer at the end of the week easier. This cost the company hundreds of thousands of dollars in scrap loss in the punch press department, whereas anyone delegated to study the over-all picture could have found the trouble by simple observation.

The above are but two specific instances, but in our experience we have seen it happen dozens and dozens of times; that is, that a vendor is told he must furnish a compound to meet the present cleaning set-up or a cleaning compound to meet the present drawing set-up, whereas proper coordination of these two important activities might have resulted in substantial savings.

Industry in general is not yet obtaining the maximum benefits and economies that can be obtained by the effective coordination of drawing and cleaning.

This article was prepared in its published form exclusively for finish. An important part of the article, pertaining specifically to porcelain enameling practice, was presented by Mr. Cairns before the Midwest Enamellers Club December meeting.

New literature

→ from Page 51

and conducted tests showing varying amounts of wear caused by different types of coolants.

102. Case histories on plant use of wirebound pallets and containers

A new 12-page booklet profusely illustrates how wirebound pallet boxes can be used to reduce materials handling costs, and how wirebound containers can be used to provide better in-transit protection for finished products for the home.

Shown are detailed photos of steps employed in packing a domestic air conditioning unit for shipment; also shown are the steps in designing a wirebound container for shipping a kitchen range.

Methods of using wirebound pallets to reduce materials handling costs on metal stampings in three different plants are also shown.

103. Bulletin explains abrasive blasting prior to enameling

A new bulletin contains case histories of how abrasive blasting improves the appearance and adherence of enamel finishes on stove plate, sanitary ware, etc.

The bulletin states that leading enamel ware manufacturers have found that "airless blast cleaning provides the right finish for a permanent bond. High speed abrasive barrage scours away every trace of foreign matter down to the virgin metal. Casting defects are immediately apparent. Finish blasting after grinding roughens the surface to insure a perfect, lasting bond for subsequent enameling."

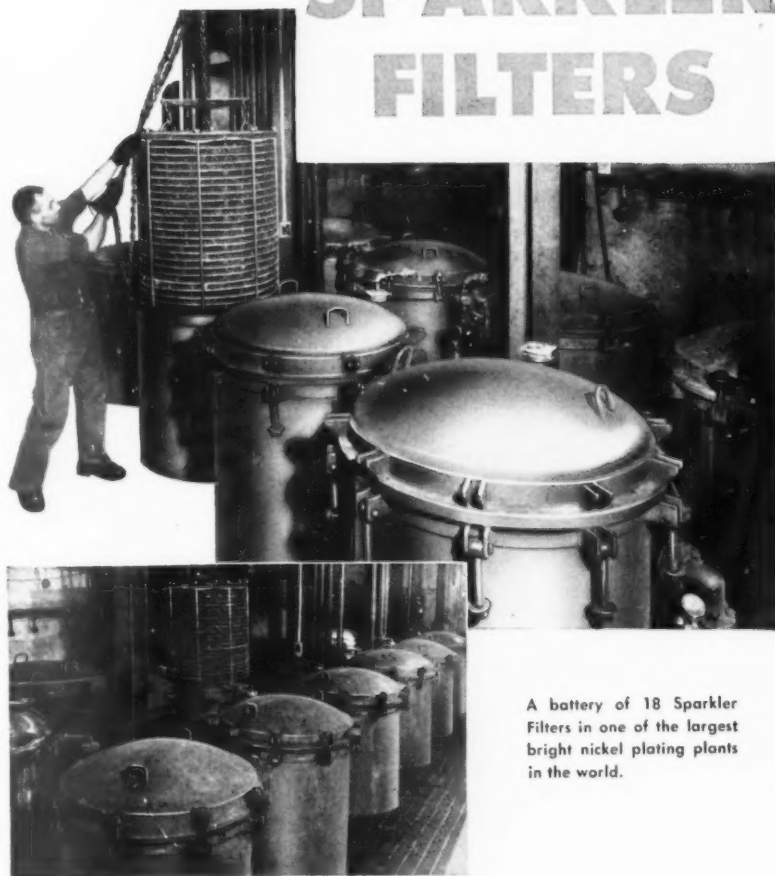
104. Bulletin on hot spray process

Information about the new hot spray process, heating paint to elevated temperatures before spraying, is presented in a new 8-page bulletin. The theory and practical application of hot spray is covered. Pictures of actual hot spray installations show typical uses of the paint heaters employed in the process.

finish JANUARY • 1951

NO SHUT DOWN

To Carbon Treat Solution with **SPARKLER FILTERS**



A battery of 18 Sparkler Filters in one of the largest bright nickel plating plants in the world.

Carbon treatment without shut down is accomplished by cutting out one or two units in a battery of filters, removing the cartridge assembly of filter plates, and replacing with a new plate cartridge dressed with clean filter paper. The proper amount of carbon is mixed with water in a standby tank and recirculated through the filter thus depositing the carbon on the new plates in a cake of uniform thickness and density. The solution requiring a carbon treatment is then circulated through the carbon beds giving the plating solution the carbon treatment without contaminating the tank or stopping plating operations.

The quick change feature of the plate cartridge in Sparkler filters permits replacing a set of plates in a matter of minutes. Production can be resumed without appreciable interruption.

Sparkler Horizontal Plate Filters give absolutely sharp filtration at all stages of the cycle.

SPARKLER MANUFACTURING CO.
Mundelein, Illinois



Winter stove convention and management conference

(Continued from Page 42)

ers, and listed for procurement by the Quartermaster Corps, through the Chicago QM Depot for the Department of the Army, include the following: Tent stoves and heaters; cooking ranges; cooking stoves; hot plates; ovens; cooking and heating combination stoves; cooking and food warming equipment; food preparation, electrical appliances.

It is suggested that to be placed on the bidders' list, all that it is necessary to do is to contact the Chicago QM Depot, asking that you be furnished the forms to place your firm on the bidders' list. After the forms have been returned, any purchases that come up on the items named will call for an "invitation for bid" to be automatically mailed.

The conclusion of the speech read by Mr. Moore stated "neither Priority and Allocation nor other controls can deliver the supplies required—it is only with the help of industry that our troops can be supplied and we are certain of your continued cooperation."

The secret weapon

An interesting message to the stove industry was presented by Alden P. (Ike) Chester, president, Globe American Corporation and former Institute president. Some of Mr. Chester's comments were based on experiences during a recent European tour.

"The secret weapon", said Mr. Chester, "is the difference in attitude, or spirit, between Americans and Europeans. An important part of this 'attitude' is wrapped up in the natural American 'sense of humor'."

In referring to wartime controls, the speaker said "If we can't win a war without 'temporary dictatorship', can we save ourselves from 'slavery' after it is all over? In this connection, a lot depends on good businessmen taking an active part." He pointed to the fact that pre-production expense for defense products is likely to be at least double similar costs during the last war. In this connection he warned, "Watch out for financial problems of conversion."

In referring to the "make stoves and guns or else" situation which is in the immediate offing, Mr. Chester stressed the fact that the future outlook for any stove organization depends almost entirely upon the caliber of the organization personnel. "We must", he said, "de-emphasize brick and mortar, and re-emphasize flesh and blood."

One point which is certainly pertinent to any conversion to defense production was the speaker's plea for effective use of the sales department. Mr. Chester feels that in the sales department are some of the best possibilities for the effective organization, development and use of emergency facilities.

Entertainment highlight

Following the usual luncheons, cocktail parties, and open house invi-

Robertshaw All-in-One

AUTOMATIC SWITCH AND OVEN TEMPERATURE CONTROL



A Simple TURN OF THE DIAL

- 1 **AUTOMATICALLY** cuts in two oven elements for quick preheating.
- 2 **AUTOMATICALLY** cuts out top element shortly before oven reaches preheat temperature, minimizing overshoot.
- 3 **AUTOMATICALLY** cuts in lower element and maintains oven temperature on that circuit only.

You get fully-automatic control of oven temperature with this Robertshaw combination automatic switch and thermostat. Compact in size. Easy to install. Four mounting positions provided, together with close-up or extended bezel to fit any switch panel in the range-top, or back panel position. Screws inserted from rear. Three basic models. Write for information.

In Home and Industry, EVERYTHING'S UNDER CONTROL



Robertshaw THERMOSTAT DIVISION
ROBERTSHAW-FULTON CONTROLS COMPANY
YOUNGWOOD, PENNSYLVANIA

tations came the highlight of the convention, the semi-annual banquet. Unusually fine entertainment was offered by the University of Cincinnati Glee Club of 140 voices.

Ritzenthaler on appliance buying

In an "off the cuff" comment to *finish*, A. B. Ritzenthaler, retiring president of the Institute of Cooking and Heating Appliance Manufacturers and vice-president of Tappan Stove Company, Mansfield, Ohio, outlined three major factors affecting recent buying tendencies in relation to home appliances. They are:

1. Anticipatory buying since Korea.
2. Mounting restrictions on credit (Regulation W, etc.)
3. Increases in the price of finished products.

Scare buying, said Ritzenthaler, has unquestionably entered into the recent (*late 1950*) buying picture. People remember the ersatz materials and higher prices during World War II. They feel that it may be four or five years before completely new appliances can be made available.

Real property and real goods are getting the "ready cash".

Watch the automobiles, suggests Ritzenthaler. Take a look at the trend in automobile purchases after the first of the year (after all of the new models have been announced). In checking these sales 45 days to two months after the first of the year, if sales have not continued, then it will be time to watch closely developments in the appliance sales picture. "In planning our production," said Ritzenthaler, "we keep a weekly check with dealers on current sales and inventories. Dealer trends are compared with earlier periods.

"In the meantime, our program covers converting to war products as smoothly as possible, without disrupting requirements for personnel."

Paint convention . . .

→ from Page 45

records month after month. We set the highest sales volume in the history of the industry. The industry sales

finish JANUARY • 1951

for the first nine months of 1950 exceeded the corresponding period of 1949 by over 100 million dollars and the same period of 1948 by 28 million dollars. I am certain that the year's (1950) sales will be well over any previous record year.

"This wonderful acceptance of our industry's products did not just happen. Nor was it due entirely to 'scare buying' or the emergency. May sales topped 100 million dollars—the first time since June, 1943. June, July,

August and September sales also set new records, all four months being the highest in history. This upturn started before the Communistic aggressive action in Korea.

"Our unprecedented volume has resulted in shortages of some raw materials. Shortage is a general term. It is not the correct word. It is simply a situation where the expansion of the industry caused an insatiable and unlooked for demand that found a raw material market in



"Sheeks, Gran'maw . . . let the little feller have some fun . . . it's finished with VEDOC"

Nothing, practically *nothing*, can hurt that hard-wearing, one-coat baked finish! It's highly scuff-resistant, practically immune to soaps, alkalies, detergents, fats, grease and moisture. Sanitary and easy to clean, Vedoc is the perfect finish for a wide range of products. In white or pastels. Baking time: 20 minutes at 300° F. or 7 minutes with Infrared Drying. Write for samples and prices today. Your order—for gallon quantities or for carload lots—will receive our immediate attention.



Remember, Ferro Is Set Up to Provide Complete Organic Coatings Service. From the Development of Specialized Coatings to Designing and Installing Efficient Finishing Oven Systems.

FERRO ENAMEL CORPORATION
LIQUID PLASTICS DIVISION
4150 East 56th Street • Cleveland 5, Ohio

the unusual position of not being able to supply all of our needs. . ."

"Now as the impact of the needs of our military forces become felt, the difficulties facing our industry—such as material shortages, civilian cut-backs, priorities, allocations and price and wage stabilization will be faced. Fortunately, to date, our troubles have been few, because the scope of Government action and voluntary industry arrangements have not limited our operations to any

great extent. However, do not be misled—the military program *must* continue and the needs for controls should increase."

In referring to Association activity by divisions, Mr. Battley said "The growth of our industry is dependent upon and has developed through scientific research. Naturally the scientific section is one of the more important divisions of our Association. Work continues on fire-retardant paints, paint as a vapor barrier,

fume control and testing methods. . ."

Referring to cooperative advertising President Battley said "It was in San Francisco in 1939 that the convention passed a resolution to resume the national advertising program, which had been discontinued in 1928. This new program has now been in operation for the last two years and its results have proven the wisdom of the members who met here.

"Every phase and every member of our industry has been benefited by this great cooperative advertising program. Certainly much credit for increased sales must be given to the advertising, publicity and promotions which have told consumers about quality paints, and sold color by suggesting uses. There is ample evidence to show that both consumers and manufacturers have been impressed with our advertising on industrial finishes."

On business for the future Mr. Battley stated "There is no intention in Government to damage industry or to cut back civilian production to the vanishing point. Instead, it is planned to have both military and civilian needs go forth together with the least possible effect upon each other. Therefore, we can expect good business during the entire period of this emergency. 1951 will be another record year for our industry's sales."

A full program

In addition to the activity reported, there were meetings with raw materials producers, presentation of technical papers, and additional business meetings. The conventioners found time also to accept the hospitality of West Coast hosts, and to take full advantage of the opportunities offered for diversion in California—the land of contrasts.

NEWS → from Page 50

puration, and Club secretary. The publication contains news pertaining to both Club activity and work of the Porcelain Enamel Institute.

PHILCO INTERNATIONAL APPTS.

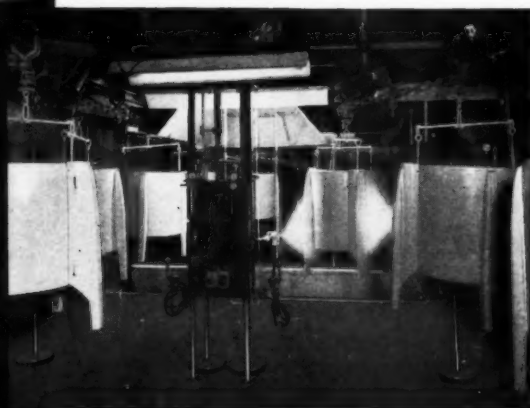
Frederick J. Willard has been appointed vice president of sales, and

Think of that!

300% INCREASE IN CORROSION RESISTANCE!
Achieved with the Addition of a Prime Coat and the Ransburg Process

That's an important factor in the manufacture of washing machines which are continuously subjected to the corrosive actions of soaps . . . salts . . . detergents and ordinary water.

Washers take on a sparkling, long-lasting finish when spray-painted electrostatically with RANSBURG equipment in the Speed Queen plant, Ripon, Wisconsin.



300% increase in corrosion resistance! Speed Queen got this quality improvement with the addition of a prime coat and changing to Ransburg Electro-Spray. Electrostatic application produces better coverage, a more uniform paint film.

And—automatically, too, on washer after washer! Consistently

uniform results are obtained with only a part-time operator. *Actually, only 10% of one man's time is needed to control the painting operation.*

Want better quality on your paint job? Ransburg engineers can quickly analyze your painting requirements. Possibilities can be checked quickly in Ransburg's test laboratory.

Electrostatic Painting Processes

RANSBURG ELECTRO-COATING CORP.

Indianapolis 7, Indiana

RANSBURG

F. Leroy Sherman vice president of foreign operations, of Philco International Corporation, it was announced by Dempster McIntosh, president of Philco International.

CANADIAN CERAMIC SOCIETY ANNUAL MEETING, JAN. 15-17

The 49th annual convention of the Canadian Ceramic Society will be held January 15, 16 and 17, at Mount Royal Hotel, Montreal, Canada.

REFRIGERATOR SALES EXCEED 4.6 MILLION FOR 9 MONTHS

Refrigerator sales for the first 9 months of 1950, by 16 firms reporting to the National Electrical Manufacturers Association, totalled 4,622,679 units to shatter the industry's best record for an entire year—1948 when 4,172,144 units were sold by 13 reporting producers.

The nine-month total was 20% ahead of the entire year 1949. September sales amounted to 535,002 units, 3% higher than August sales.

CONFERENCE ON INDUSTRIAL PERSONNEL AT COLUMBIA U.

A "Conference on Industrial Personnel" at Columbia University will be held March 19 to 23, according to Prof. William W. Waite, head of the Personnel Area of the Columbia Department of Industrial Engineering, and director of the Conference.

Under the theme of "The Frontiers of Personnel Administration," certain new concepts of personnel administration will be presented in lectures and round-table clinic discussions between authorities on various phases of personnel administration and representative of approximately 50 leading industrial concerns.

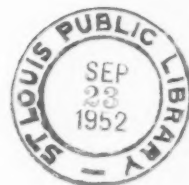
Of major interest, said Professor Waite, is the fact that "each company represented will send both a top personnel executive as well as a first-line supervisor to the conference. We believe that this is the first time that foremen, who must implement and carry out policies, have had an opportunity to express, in such a

conference, their thoughts and reactions to personnel administration ideas in the formative stage . . . before management's adoption. We believe the conference will develop, on the part of the foreman, an understanding of what personnel executives are attempting to do and why, and that the personnel executive will be reminded of how foremen think and feel and of the position of the foreman in the modern industrial organization."

AES HONORS VAN DERAU

C. L. VanDerau, works manager, Westinghouse Electric Corporation, Mansfield, Ohio, has been elected an honorary member of the American Electroplaters Society.

At the first national AES convention in 1914, Mr. Van Derau was said to have been the youngest delegate in attendance. In 1925 he was one of three members selected to perpetually establish an Electroplating Research Associate under the direction of the



Reminder
for '51 '52 '53 '54 '55 '56 '57 '58 '59

a swell feature to have...
a swell feature to sell!

*FIBERGLAS is the trade-mark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation for products made of or with glass fibers.



Bureau of Standards. In 1932 he served as president of the Society.

SIGN CONVENTION TO BE

HELD IN NEW YORK, FEB. 5-7

The Fifth Annual Convention of the National Electric Sign Association will be held at the Hotel New Yorker, New York City, February 5, 6 and 7.

Some of the subjects to be considered in a series of clinics on operating problems include: Maintenance,

Costs and Estimating, Financing Sign Sales, Leasing, and Insurance.

Al Marmon, Convention chairman, indicated that the demand for exhibit space is well ahead of last year.

MAC DERMID APPOINTS

MILWAUKEE DISTRIBUTOR

MacDermid, Inc., of Waterbury, Conn., has announced the appointment of Donald Sales & Mfg. Co., Milwaukee, Wisconsin, as exclusive

distributors in Wisconsin for their complete line of metal cleaners, bright copper and other metal finishing preparations. Donald Sales & Mfg. will carry complete stocks of these materials in their Milwaukee warehouse.

T. F. O'Brien, MacDermid sales engineer, is handling customer service on metal finishing problems.

BINKS SCHOOL SCHEDULE

Binks Mfg. Co.'s "spray finishing school" classes have been announced as follows: January 8 to 13; February 5 to 9; and March 5 to 9. Classrooms are in the Binks plant, 3122 Carroll Ave., Chicago.

DE VILBISS MAN IN EUROPE

Lewis W. Lammiman, technical service manager, The DeVilbiss Company, left for Europe on November 16 to spend some time with users of the company's spray finishing equipment and exhaust systems in Italy, France, and England.

LUBRICATION ENGINEERS

TO MEET APRIL 16-18

The 1951 National Convention of the American Society of Lubrication Engineers will be held at the Bellevue-Stratford Hotel, Philadelphia, April 16, 17 and 18.

Prominent authorities who will address the convention include: Dr. W. A. Zisman and H. R. Baker, Naval Research Laboratory, Washington, D. C., and H. B. Carpenter, Esso Standard Oil Co., on "Rust Preventives"; J. T. O'Reilly, Ford Motor Company, on "Drawing Compounds"; R. Larsen, Shell Development Corp., on "Oil Deterioration"; W. A. Lewis, vice president, International Business Machines Corp., on "What Lubrication Means to Management"; R. G. Shepherd, engineer, standards department, Factory Mutual Engineering Division, on "Effective Lubrication as a Fire Preventive"; and O. M. Albl, lubrication engineer, Thompson Products Co., on "Storage and Handling of Lubricants".

It was indicated that advance booth reservations for the Annual Lubrication Show, sponsored by ASLE, which runs concurrently with

PATTERSON

Satisfactory
EQUIPMENT
for

Enamel Frit GRINDING



PEBBLE MILLS
Batch-type mills operate at low cost and provide ideal grinding performance for enamel frit. Strongly built and smooth-running. Available in a wide range of sizes. Write for details.



CONTINUOUS GRINDING SYSTEMS
Closed circuit grinding of enamel frit provides dust-free operation, finishing to any desired mesh under close regulation. Production costs reduced to the minimum. Air classification or screen separation. Send us your problem.



Richard L. Cameron

The Patterson Foundry and Machine Company
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CHICAGO, ST. LOUIS, HOUSTON, DENVER, LOS ANGELES, SAN FRANCISCO, SEATTLE
The Patterson Foundry and Machine Company, (Canada) Limited
Toronto, Canada
MONTREAL

the Convention, exceed those of any previous year.

NEW PERFECTION SPACE HEATER

Perfection Stove Company, Cleveland, has a new console-type space heater ready for production. An oil



heater, the new model has a rated output of 70,800 Btu's per hour. It has a porcelain enameled one-gallon humidifier, combination oil control and constant level valve, louvered panel for radiating heat, and a removable top grille. The heater casing also is porcelain enameled.

A blower which circulates heat across the floor area is standard equipment on the heater. Available as an optional accessory is a 5-gallon fixed fuel tank, for placement on the back of the heater. The new model is finished in Perfection's Silverspray-brown baked enamel and trimmed with chrome.

ELASTIC STOP NUT APPTS.

Promotion of John G. Holschuh to the position of manager of ES-nail sales has been announced by Elastic Stop Nut Corporation of America, Union, N. J. He succeeds Kenneth D. Davis who is now district manager in charge of the company's Chicago office.

NO RHEEM REFRIGERATOR

PROMOTION UNTIL 1952

Rheem Manufacturing Co., which recently announced (December, 1950, finish) that it is entering the gas refrigerator field, has revealed that it will do no advertising on the new

refrigerator until mid-1952. About 500 units will be released to public utilities sometime during 1951, with

marketing planned for 1952, dependent upon the raw materials and war situation, it was stated.

The current importance of market research in the home appliance industry

(Continued from Page 29)

for civilian production has not yet been seriously curtailed, manufacturers certainly must look to the possibility of a greater future diversion of steel and other critical materials to defense production. In my opinion,

the defense program will gain momentum and we would be shutting our eyes to reality if we did not consider increasing production limitations a distinct possibility.

2. We have already begun to see

as simple as A·B·C



These components for the completely enclosed pipe-line type FerroFilter shows its simplicity of design. Simplified design, careful workmanship, and the finest materials are combined in an extremely effective electromagnetic separator that will give you long, trouble-free service.

To get the clean sparkling enamel finishes you want for your finished product, you *must* have clean, iron free enamel slips. Thousands of feet of magnetized edges of the FerroFilter grids form a protective wall against iron contamination.

The pipe-line FerroFilter will fit into your dip tank circulating system, and your mill unloading or liquid transfer systems to give you the protection you need. Gravity type FerroFilters are available for general use where a closed system is not required.

No modern enameling plant can afford to operate without adequate FerroFilter protection. They represent the lowest cost finish insurance you can buy.

Authorized Representatives for the Enameling Industry

Chicago Vitreous Enamel Product Co., 1425 So. 55th Court, Cicero 50, Ill.
Ferro Enamel Corporation, 4150 East 56th Street, Cleveland 5, Ohio

S. G. FRANTZ CO., INC.
161 GRAND STREET, NEW YORK 13, N. Y.

evidence of forces which will limit the consumer's ability to buy. I believe there are five factors which will act as brakes on the ability of the consumer to buy civilian goods. While these will apply in varying degrees, they are certain to exert a considerable influence on the future of our economy. As I see them they are:

A. The return of regulations, already started, increasing the required down payments, and the shortening of the length of time for the payment of goods bought on installment. This, too, is already with us in some measure.

B. Every American citizen faces higher income taxes. Every worker needs only to look at his pay check since October 1 to see the proof. Likely these taxes will be stepped up further to meet the demands of our defense program.

C. Higher living costs already have been felt by every housewife. The over-all cost of living has risen markedly since the pre-Korean level and is certain to go higher.

D. Uncertainty over the military status facing millions of young men and women of military age has had an effect on the housing market since the majority are reluctant to buy when facing the possibility of being called into the Armed Forces. Note

Editor's Note:

This article is published for the basically sound information of a general nature which it includes. The article was prepared in late November to meet an early December deadline, and therefore rapidly changing world events during the month of December could not be considered by the author.

that the Government already proposes the stepping-down of the house-building program.

E. The shifting labor force to defense areas will be upsetting. It will benefit some communities, but at the expenses of others. Just how and to what extent is difficult to forecast.

One of the developments since June has been a sharp increase in the replacement of appliances that have a

high over-all saturation. In effect, this means that the market is being robbed of future buyers who are replacing serviceable appliances at this time with the thought that they may not be available later on.

Our own market research department reports that, during the months since the Korean trouble started, sales have consisted of 67 per cent replacements compared with a normal replacement of 46 per cent. On ranges the differential is 36 per cent compared with a normal of 22 per cent. There has also been a surge of buying on the part of new home owners not yet in need of the appliances for actual use.

Guideposts for the future of appliance sales

Certainly every business operation will have to take into consideration these new factors which are bound to have a profound influence on our future. These are guideposts that must be watched closely.

Market research experts now must balance these new factors with the

Guaranteed Results

in the

Pickle Room

with

Specification Materials

and

Experienced Service

MANUFACTURERS OF

LEPCO

LEPCO PRODUCTS

Suppliers to Porcelain Enameling Plants

CLEANERS • NEUTRALIZERS

DRAWING COMPOUNDS



V. B. PUNDERSON COMPANY

402 SWETLAND BUILDING

CLEVELAND 15, OHIO

If YOU DON'T SEE IT HERE ---- IT'S PROBABLY IN OUR CATALOG



If IT'S NOT IN OUR CATALOG --- WE'LL DESIGN IT FOR YOU

THE FAHRALLOY COMPANY

150th & Lexington Ave.

Harvey, Ill.

old. It is still too early to discount the possibility of a buyers' market developing. In other words, we are faced with prospects of strong demand continuing into the immediate future. On the other hand, there is the possibility of production, even with limited controls, filling the pipeline. This possibility can be seen by examining refrigerator sales.

It is estimated that in 1950 (*when the statistics are complete*), refrigerator production could well reach 6,000,000 units if there were no restrictions. Assuming that reduction of output during 1951 is about 20 per cent, despite the anticipated diversion of steel, we would still produce perhaps 4,500,000 refrigerators in the year, making it even then the second largest year in refrigerator history.

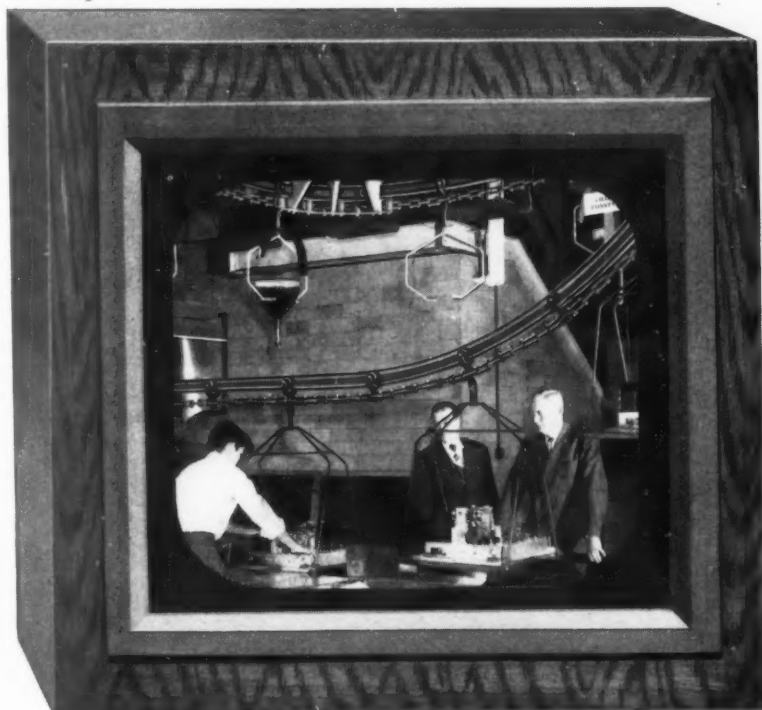
These figures dramatically illustrate the point that consumer demand must remain at extremely high levels to support the industry's production during the coming year, even under curtailed schedules. Most significantly, these figures emphasize the responsibility of marketing management.

Assuming, then, that despite long-range commitments for defense, we are able to produce vast quantities of consumer goods, our marketing organizations will face a continuing challenge to assure the flow of these goods into the consumer's home.

Another facet of market research can be seen in the following dramatic illustration that emphasizes the demands of our expanded defense economy. During the period from 1930 to 1940, the national birth rate declined. However, it increased rapidly from 1940 to 1950. As a result of the decline from 1930 to 1940, there are fewer young men and women in the 20-year-old bracket now coming of age who will be eligible for the nation's work force. With fewer workers and an increasing production requirement there will be a greater demand for machinery, equipment and power. Just as the nation has progressed in population, employment and productive capacity, we must strive to improve our distribution efficiency.



EVERY MINUTE . . . Nearly 3
DUMONT TV SETS
ARE PRODUCED



with the help of
WEBB CONVEYORS

Where cathode tube conveyor meets chassis conveyor at
Allen B. DuMont Television Laboratories, East Paterson,
N. J. . . . both Webb Conveyors.



**8913 ALPINE AVE.,
DETROIT 4, MICHIGAN**

BRANCH FACTORIES:

JERVIS B. WEBB CO. OF CALIFORNIA
LOS ANGELES 23

JERVIS B. WEBB CO. OF CANADA LTD.
HAMILTON, ONT.

DISTRICT OFFICES:

ATLANTA 6 • BOSTON 59 • BUFFALO 21
CHICAGO 49 • CINCINNATI 2 • CLEVELAND 13
DALLAS 4 • GRAND RAPIDS 7 • MILWAUKEE 11
MINNEAPOLIS 15 • NEW YORK 16 • PHILADELPHIA
PITTSBURGH 16 • ST. LOUIS 7 • SAN FRANCISCO 3

MANUFACTURERS OF OVERHEAD AND FLOOR TYPE CONVEYORS

Straight-line appliance production

(Continued from Page 26)

by a split shield until the jacket can be slipped on. After the jacket is in place, the shield is removed and the water heater is ready for final assembly.

Assembly, testing, and packaging

Final assembly, testing and crating of the water heaters is a series of blended operations. The jacketed tank is first placed on a crate base which in turn rests on a floor-level roller conveyor line. Small metal cups on the crate base, one for each heater leg, act as guides in placing the heater and prevent subsequent slippage.

Resting on this crate base, the heater then proceeds along the conveyor past stations where the heating unit, pipes, and various controls are installed. It then travels past a test pit where attachments are made for testing. Each tank is tested hydrostatically at 350 pounds per square inch. A check for gas leakage is made using an external flame at all possible leak points.

When a heater has passed the test pit, a heavy paper wrapping is pulled down over it and a crate lid is placed on top of the heater. The next step is application and fastening of the wirebound mat crating material. At the end of the conveyor, the heater is fully tested, inspected, crated, and ready for the shipping department. (See two illustrations showing packing procedure appearing on Page 69.)

While large water heaters (over 18 inches in tank diameter) and electric water heaters are produced and fabricated on separate lines, the procedure is very much the same for each.

Wall heater production

The radiant-type circulator wall heaters make up the fourth production line, and the aluminum and sheet iron parts are joined together with metal screws and by metal stitching. All sheet iron parts on the wall heaters are given a baked coating of heat resisting aluminum paint. Like the water heaters, the wall heaters undergo rigid inspection under actual oper-

ation conditions before they are approved for shipment.

A small but efficient machine shop turns out various fittings, mounting brackets and controls. Gas burners are purchased in the "as cast" condition, but are machined and drilled in the company's shop. An automatic drill press with nine indexing locations is used for drilling the burners. A tooling department produces jigs, dies, and other machine tools as they are required.

A separate department crates heaters scheduled for export shipment. In this case, the crates are of 3/4-inch wood nailed and bound together with steel strapping.

Engineering department deals in ingenuity

A plant engineering department keeps continuously busy trying to improve existing equipment and designing new equipment. The automatic seam welder, automatic rolls, highly efficient galvanizing department, baffle forming machine, and

test pits, are all products of this department's ingenuity. A small laboratory is maintained for testing processing solutions, and for other types of quality control work.

The outstanding production feature at Mission Appliance is the provision for straight-line material flow from the receiving department through the various manufacturing departments, and ending up in the finished product. Very little in-process storage of parts is necessary. The production of any one department is carefully balanced to that of the department preceding it in the production schedule.

Another noteworthy production feature is the highly conveyORIZED method of materials handling. Not only is a minimum of manual handling required, but when such handling is necessary, the various conveyor systems are designed to minimize up and down handling with consequent manual effort.

The final assembly operations, blended so conveniently with testing, inspection and crating, is an excellent example of production engineering efficiency.

NEMA holds 24th annual meeting in Atlantic City

(Continued from Page 39)

nal growth, it was pointed out. Even with restrictions on new home construction, hundreds of thousands of homes both old and new will continue to offer a huge potential market for new ranges. The campaign in architectural and builder publications will stress the advantages to builders of installing electric ranges in the new home they build, and will use testimonials from builders who have sold completely equipped homes.

An advertising campaign aimed at home economics teachers will feature recipes by nationally known home economists. In addition, the Section's new "Educational Aids Kit" will be promoted through utility service companies for school use, by means of a direct mail campaign. This kit was tested early in 1950 through a pilot program in 1500 schools. It includes film strips and collateral material which tells a complete story of the

modern electric range.

The Range Section will also promote its product through publications reaching school boards and supervisory officials explaining the installation of electric ranges in school economics laboratories. Each advertisement will offer a free floor plan booklet entitled "The Modern Home Economics Department."

An advertising campaign aimed at electric appliance dealers will emphasize the following which the retailer should do to sell more ranges: (1) He should have a "live" range on the sales floor for actual demonstration purposes. (2) He should have a range in his own home so that he may learn its advantages first hand. (3) He should make follow-up calls on range customers after delivery, to provide further demonstration and instruction in its use.

safe transit

A monthly trade publication section devoted to improved packaging and shipping and materials handling practices in the home appliance and allied metal products field.

Plant experience information for all executives and plant men interested in the problem of packaging and shipping improvement and loss prevention.

Complete information on the National Safe Transit pre-shipment testing program for packaged finished products, and detailed progress reports of divisions and sub-committees of the National Safe Transit Committee.

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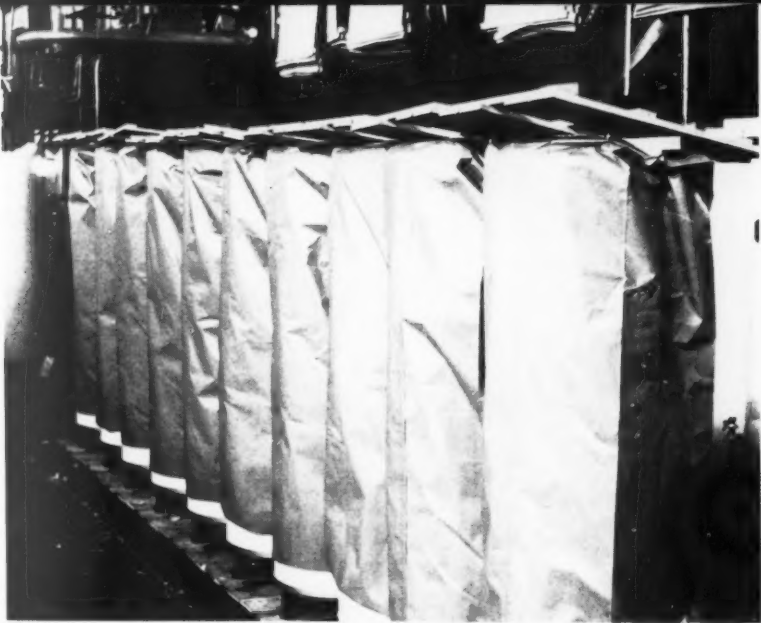
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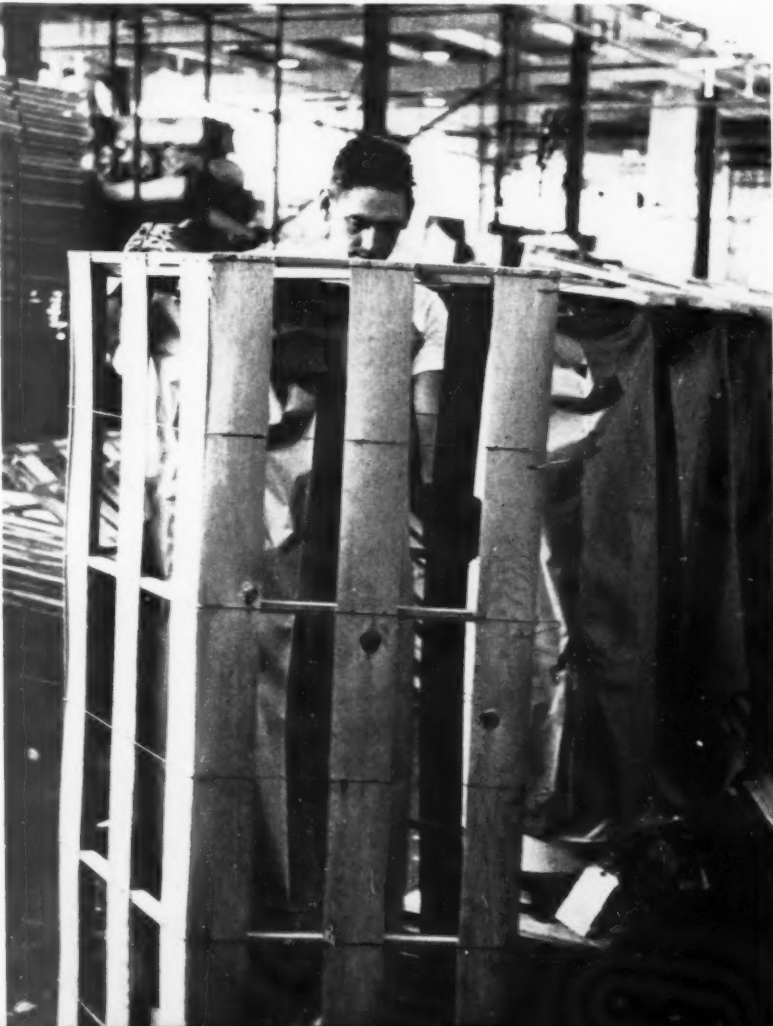
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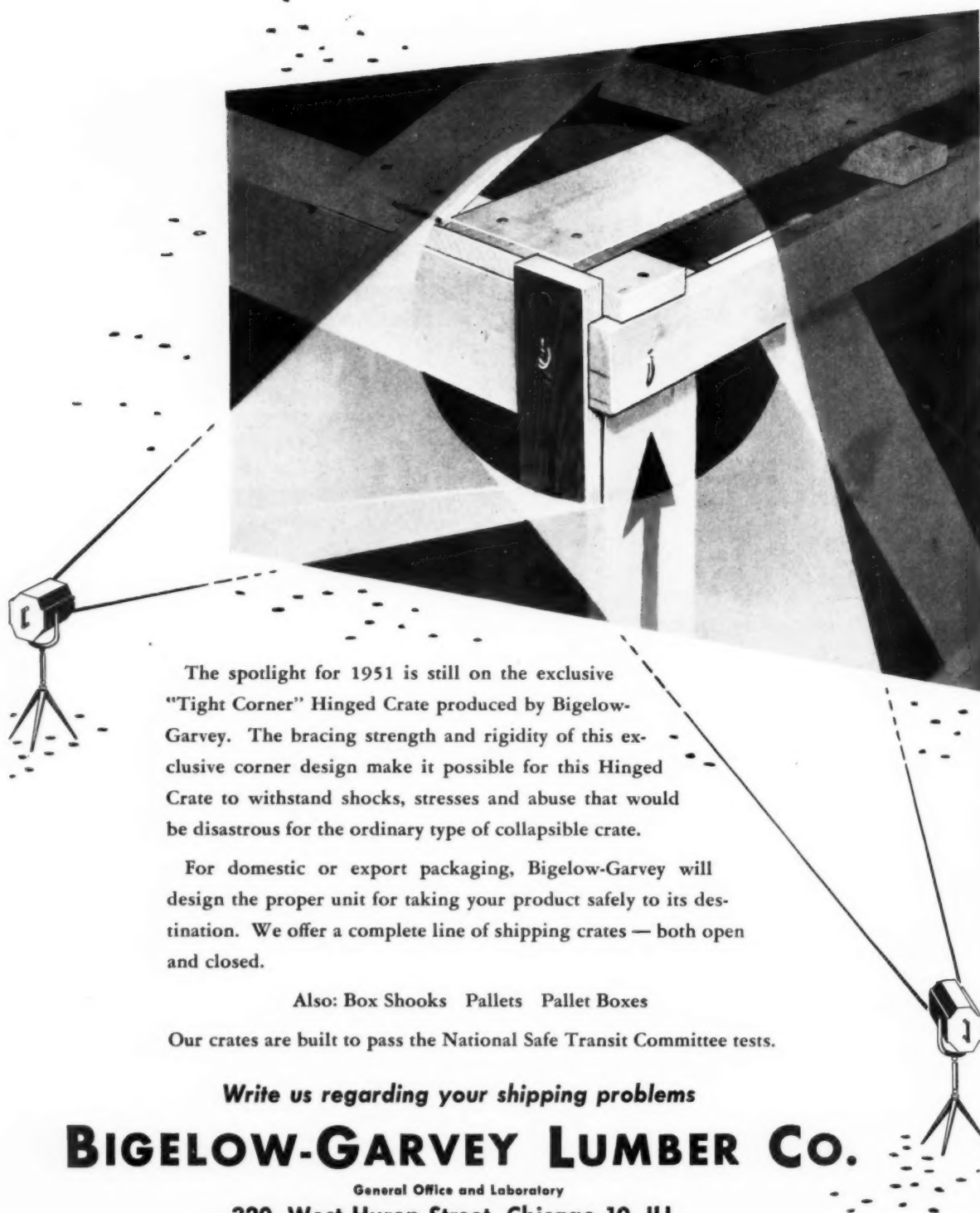


Final packaging operations for Mission Appliance water heaters
(see feature article starting on page 23)

The jacketed tank is first placed on a crate base for transportation on a roller conveyor. When a heater has passed a test pit, heavy paper wrapping is pulled down over it and a crate lid is placed on top. The next step is application and fastening of wrap-around crating mat.



The Spotlight is on the "Tight Corner"



The spotlight for 1951 is still on the exclusive "Tight Corner" Hinged Crate produced by Bigelow-Garvey. The bracing strength and rigidity of this exclusive corner design make it possible for this Hinged Crate to withstand shocks, stresses and abuse that would be disastrous for the ordinary type of collapsible crate.

For domestic or export packaging, Bigelow-Garvey will design the proper unit for taking your product safely to its destination. We offer a complete line of shipping crates — both open and closed.

Also: Box Shooks Pallets Pallet Boxes

Our crates are built to pass the National Safe Transit Committee tests.

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Cushioning materials

basic considerations for the selection and application of the cushioning medium

by *Herbert M. Lapidus* • SUPERVISOR, PRESERVATION & PACKAGING DIVISION, NAVAL AVIATION SUPPLY OFFICE, PHILADELPHIA, PENNSYLVANIA

IN view of the staggering losses which the industries and the carriers of this nation continue to suffer annually due to improper selection and application of cushioning materials, a review of basic considerations is very much in order.

The term "cushioning materials"

Cushioning materials are those materials, devices, and/or methods which are introduced inside a product, between a product and its container, and between two or more containers for the purpose of preventing damage in transit, handling, and storage.

Just where do cushioning materials fit in relation to the complete package? Essentially, a package must be regarded as containing the following elements: (1) components of the article; (2) the complete article; (3) cushioning materials or medium; and (4) the container. This order of listing is not intended to imply that the cushioning medium is always immediately adjacent to the article. In order to increase surface area for the purpose of effecting better and more uniform shock absorption and distribution, the article is often rigidly mounted in a container or on supports which are floated in a cushioning medium.

It is important to list "components of an article" as a separate item because the maximum safe shock that an article can withstand without damage or impairment of its usefulness (commonly called the "g"

factor) is entirely dependent upon the resistance of its most delicate component. This follows the old adage that "the chain is only as strong as its weakest link." Too often, this item is overlooked, resulting in hidden damage and malfunction, even though damage cannot be detected externally.

It is important, too, to know the characteristics of a product intimately before selecting a cushioning material.

Performance testing shows inherent product weakness

With the development of performance testing in the past several years,

packaging laboratories have discovered numerous examples of inherent weakness in the manufactured product which reflected adversely on the cushioning material. In many cases, it has been possible to improve the product and effect considerable savings in packaging costs.

In addition, intelligent application of cushioning materials cannot be made in many cases until areas of greatest strength and weakness, or structural characteristics are known. As an example, there is a tendency in the aviation industry today to mount or support certain items in a manner simulating installation on the plane. This approach, which takes



Large pads of built-up corrugated material are placed on the corners of this refrigerator to provide cushion against lateral shock.



Use of rubber cushioning pads on the bottom corners is a medium for absorbing vertical impact. The friction of the corner rubber pads also serves to retard the velocity of shift in the horizontal plane.

advantage of the inherent strength in the product, has proven most successful.

To reduce costs and prevent waste, a cushioning material should never be called upon to do a job which can be done by the product itself.

Types of cushioning materials

There is no "best" in the cushioning material field, except as related to a specific packaged article. When compared on a performance basis for packaging the same item, cushioning materials should be evaluated and compared in terms of their primary purpose which is to protect the item from damage in terms of the following: (a) cost of material and cost

of application; (b) space, including container size limits; (c) availability, including strategic value in time of emergency for other purposes; (d) storage and handling considerations; (e) ease of application; and (f) reuse possibilities.

The matter of space often poses an interesting problem in economics. Some cushioning materials are capable of doing as good a job, or better, than other materials requiring 2 or 3 times the space in the package, but are initially more expensive. Consideration must be given to by-product savings which can be realized when packages occupy less space in transit, storage, and handlings. In addition, savings in container costs

Showing the application of corrugated pad laminations on the corner of a range. Just preceding this operation, padding was placed between doors and other movable parts and the range body, and the parts tape-closed.



are realized when size is reduced.

In selecting a cushioning material for a delicate or fragile item, important functional characteristics must be considered. The materials must be capable of performing its primary function which is either to (1) absorb and distribute shock, (2) transform, divert, and distribute shock, or (3) localize stresses caused by shock.

In addition, there are also additional considerations. Will the material yield readily and uniformly under stress? Will it withstand repeated shocks without falling apart or losing its shape? Is it sufficiently dense to support the weight of the article without undue compression? Can the material resist moisture, or retain its cushioning properties when exposed to moisture?

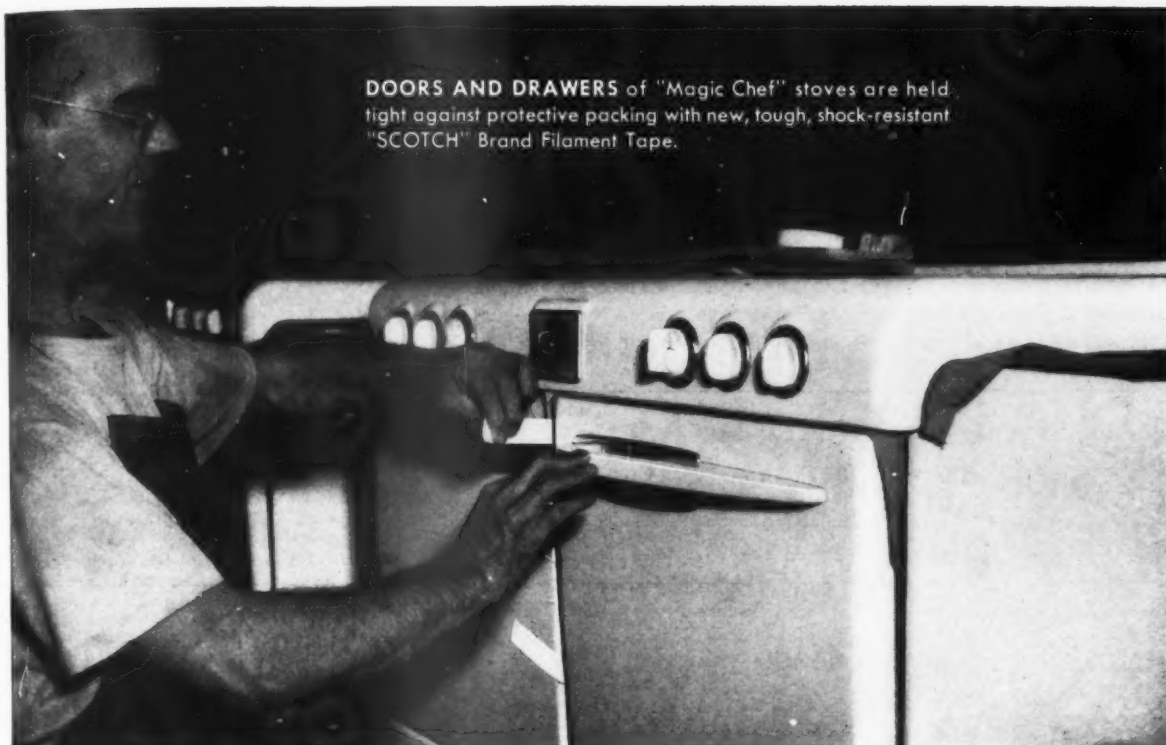
Test methods commonly used

Test methods may be used to study the various characteristics of cushioning materials with respect to elasticity, compressability, load capacity, and permanent set.

When studied and evaluated as independent materials, the two test methods most commonly used are the static or dead loading method and the dynamic or drop test loading method.

Data obtained by these methods should be correlated and checked, whenever possible, with data obtained from performance tests on *packaged articles*. Performance data can be developed by using such instruments as the accelerometers, "g" meters or cushioning meters, impact recorders and strain gauges. In addition, a vibration table can be used to simulate repeated shocks encountered in transit to check qualities of the material in resisting deterioration or collapse.

Though cushioning materials can be selected and prescribed on the basis of established data, performance testing is necessary because the pay-off is the *packaged article*. The value of the cushioning material as a separate entity is unimportant. Its true value lies in its ability to protect the particular article under conditions encountered in handling, shipment

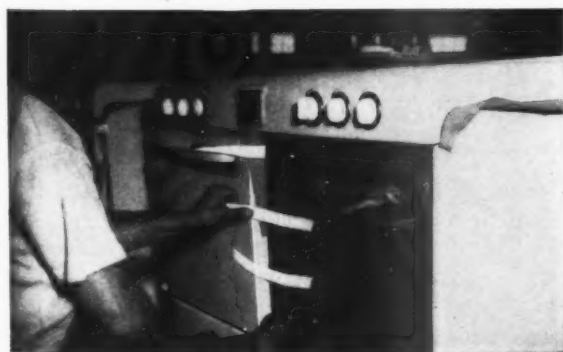


DOORS AND DRAWERS of "Magic Chef" stoves are held tight against protective packing with new, tough, shock-resistant "SCOTCH" Brand Filament Tape.

Stoves taped for shipping arrive without chipping!

"Perfect for the job"—that's what American Stove Company, St. Louis, Missouri says of "SCOTCH" Brand Filament Tape No. 880. This high-strength, non-slip tape secures grills, doors and tops of their "Magic Chef" stoves during shipment—helps prevent marring and chipping of finish. Tape holds securely all the way—and stoves are quickly, easily readied for sale when they reach their destination.

This tape "protection" cuts packaging time and costs. No expensive application equipment is required.



LOCK-STRIP METHOD FOR HOLDING. Apply one end of each tape strip to inside, close doors, apply extended end of strip to outside of opposite door. Result: bonds are better, protective pads stay in place. Filament tape is available in 2592 inch rolls in 7 widths from 1/4 to 1 inch. Five colors available for product identification.

Easy-to-apply filament tape is pressure-sensitive, holds firmly with simple hand pressure.

The new-type construction of this tape gives as much as 5 times the tensile strength, 50 times the tear resistance of most industrial tapes now on the market. Tape's adhesive won't stain the finish—tape strips off the job in a jiffy.

"SCOTCH" Brand Filament Tapes can do many different jobs faster and better than conventional strapping methods. Write Dept. F1 for full information.



Made in U. S. A. by MINNESOTA MINING & MFG. CO., St. Paul 6, Minn., also makers of other "Scotch" Brand Pressure-Sensitive Tapes, "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotch-lite" Reflective Sheeting, "Safety-Walk" Non-Slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: Durex Abrasives Corp., New Rochelle, N. Y. In Canada: Canadian Durex Abrasives Ltd., Brantford, Ontario.

and storage when performing in conjunction with the container and the article. These conditions introduce many factors and variables which can neither be anticipated nor measured.

The answer to scientific selection and application of cushioning materials appears to lie in the direction of *performance standards* which establish performance tests of various kinds for the *packaged article*. These tests simulate actual conditions en-

countered when packaged articles are dropped, rough handled, or subjected to repeated shocks and vibrations.

Performance standards are subject to adjustment as actual field experience is made known. The type, density, thickness, and cost of cushioning materials are frequently affected by such adjustment.

Aside from considerations for mechanical protection, other characteristics should be considered prior

to final selection of cushioning materials.

Even though some cushioning materials meet all requirements for doing their primary job of protecting articles from mechanical damage, they are often rejected or their use is limited because they (1) are cor-

Editor's Note:

This article was adapted for *finish* from a section of the packaging and materials handling "short course" conducted jointly by the Society of Industrial Packaging and Materials Handling Engineers and Community College of Temple University, as part of the Fifth Annual Industrial Packaging and Materials Handling Exposition.

Attention is directed to the importance accorded performance tests on the PACKAGED PRODUCT, the underlying principle of the National Safe Transit Program for home appliances and allied products. Note, too, the author's direct reference to the NST cooperative program in his closing paragraph.

**IT'S WHAT YOU NEED--
NOT WHAT WE HAVE--
THAT'S IMPORTANT**



We don't have to try and sell you what we have, because we have just about everything.

SUPERSTRONG comprises a complete line of wirebound, wooden and corrugated fibre boxes or crates. They are designed and fitted to your product-with no need to try and fit your product to a ready-made box.

The improved design and sturdy materials of all **SUPERSTRONG** shipping containers give you not only increased protection, but increased economy. Let us tell you all the whys and wherefores.



WIREBOUND BOXES and CRATES
WOODEN BOXES and CRATES
CORRUGATED FIBRE BOXES
BEVERAGE CASES
STARCH TRAYS
PALLETS

rosive because of their moisture or chemical contents; (2) are capable of supporting mold, fungus, or bacteriological growth; (3) attract vermin and rodents; (4) are coarse to the extent that they damage highly finished surfaces; (5) cause skin irritation to personnel; (6) are dusty to the extent that particles which they give off will damage or cause malfunction of complex mechanisms or systems; and (7) are dirty, containing foreign contaminants.

Overcoming adverse characteristics

Some materials which are corrosive by contact can be used if separated from the article by neutral paper or foil (pH 6.0-8.0). Others which establish a corrosive atmosphere can be contained in plastic coatings or water-vaporproof materials.

Hygroscopic properties can be controlled by drying, provided cushioning properties are not affected. Because hygroscopic materials take on moisture from the atmosphere in which they function, sealed containers should be used.

Many coarse materials have excellent cushioning properties for certain

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RATHBORNE, HAIR AND RIDGWAY BOX CO.
1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

A new method of handling crated appliances

describing a materials handling development which has resulted in unusual labor savings

by *A. V. Blatz* • STAFF PACKAGING ENGINEER, A. O. SMITH CORPORATION, MILWAUKEE, WIS.

ADOPTION of a new method of handling crated water heaters has resulted in a manpower saving of more than 50%, along with elimination of all pallets, reduction of damage to crates and contents, and reduction of lift truck maintenance costs at our Water Heater Division plant, in Kankakee, Illinois. (See first report on Page 71, November 1950 finish.)

The plant's lift trucks have been equipped with a fingerlift attachment which eliminates the need for pallets and consequently eliminates the function of the usual fork type of lifting arm on this particular operation.

Crates of water heaters may be lifted singly, in pairs, or in threes, directly from the production line and transported either to storage or directly into boxcars for immediate shipment. They may be stacked in banks three crates high and stowed in boxcars two high, again without use of pallets or extra manpower in any part of the operation.

Spring loaded fingers do the work

Design of the attachment embodies a series of spring loaded fingers mounted on a horizontal shaft so that slight pressure on the tips of any of the fingers causes them to retract by tilting backwards. A vertical

apron below this shaft serves as a rest when the mast is tilted back. The whole assembly is mounted on a side shift mechanism.

In operation, the truck moves forward until the apron meets the crate. In this position some of the fingers protrude between vertical slats while others are pushed back. Then, as the truck mast is raised, fingers between

the slats engage a horizontal cleat or the crate top to raise it. The tilted fingers merely slide up the slats out of the way. Except for the usual raising and tilting of the mast, the entire operation is automatic.

Positioning the crated heaters in a freight car or storage stack is just the reverse—the mast is tilted forward to vertical and lowered. Our



One man with fingerlift-equipped truck picks off two crates from the end of the production line. No pallets and no additional manpower are used in this operation. From here the truck can take its load either to the warehouse or directly into a boxcar for shipment. This particular low-mast electric truck is used principally for boxcar loading.

finish JANUARY • 1951



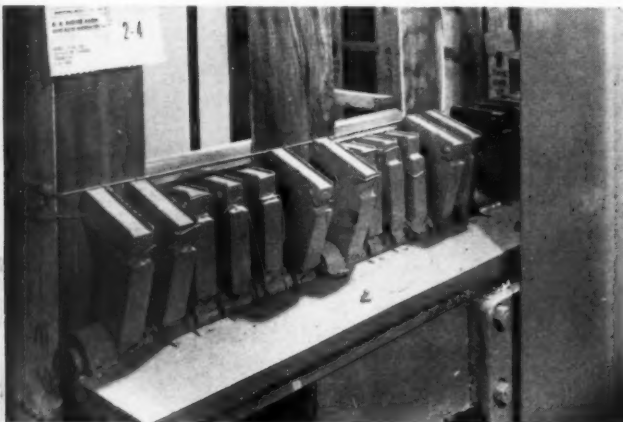
Left: Stacking or taking three crates from the third tier which had been stacked without pallets and without additional manpower is routine for one man and one fingerlift equipped truck at Kankakee.

Below: In loading a boxcar with the fingerlift-equipped electric truck, no manpower other than the driver is required. One truck can place either two or three crates at a time, depending on width of car and size of crates.

own designed side shift attachment permits pin-point spotting without any voids between crates, and the large apron allows crowding crates against end wall or previously stowed or stacked crated heaters. It is this compact loading that is so favorable to floating load shipping, the method we use when shipping crated heaters in carload lots.

The short fingers increase maneuverability of the lift trucks and reduce

Left below: Engaged and ready to lift, some fingers engage cleats while others are pushed back by the crate slats.



the turning radius. Their effect is to increase the lifting capacity as the center of gravity is now only one-half the distance from the mast. The operation, aided in no small part by our sideshift attachment, wipes out all jockeying and slipping of clutches and repeated use of brakes.

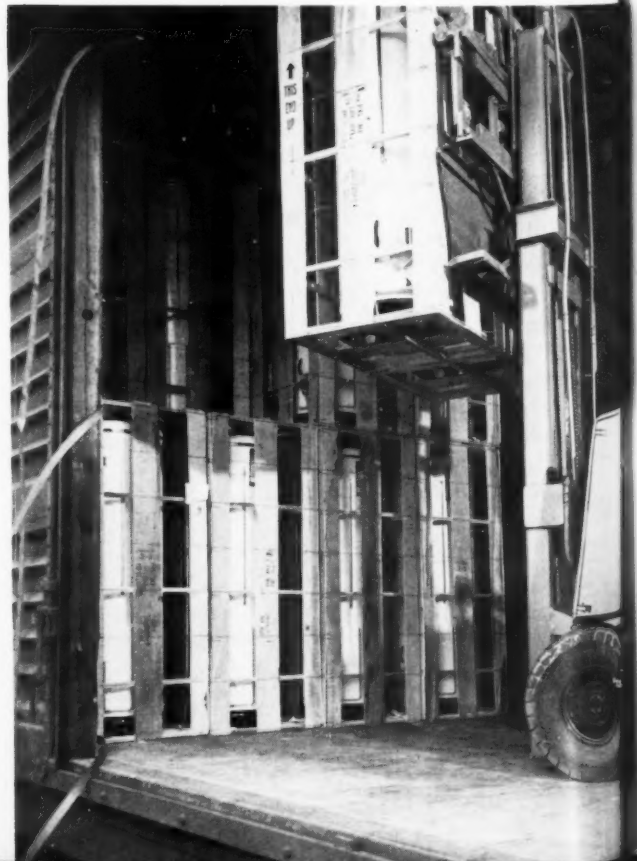
Typical operations

Two typical operations illustrating the facility of this fingerlift can be cited:

1. At the end of the production line, the truck picks off crated water heaters two or three at a time and

If additional information is required in connection with this interesting innovation, write direct to finish magazine.

places six crates on a dolly parked nearby. Then the truck takes either two or three more crates on the fingerlift, hooks on to the dolly and transports eight or nine crates to storage and stacks them. This entire operation is carried out by one man on one lift truck. Before pallets were



eliminated from the handling operation, two men handled the crates from the production line to pallets on the dollies, and two more men were atop the stacks handling the crates into place.

2. In another operation, the finger-lift takes finished heaters directly from the production line and stacks them in boxcars in one trip, again using only one man on one truck with no additional manpower and no use of pallets. Two men with finger-lift trucks regularly load 1600 heaters into 10 cars in 7½ hours.

Additional economies have resulted in the elimination of pallets and consequently their maintenance costs, more orderly warehousing through reduction of the number of aisles, reduction of waste space, increasing stack height, and reduction of damage to crates and heaters.

Six men move more crates than 22 formerly moved

A recent manpower survey showed that, even though production is higher than ever before at our Kankakee Works, the number of lift truck operators and helpers was reduced from 15 to 5 and the stock repair force reduced from 7 to 1. This is a total reduction of 16 men from an original total of 22 men, with 6 men now moving more crates than the former 22.

Cushioning materials

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applications. They can frequently be used if enclosed in sleeves or pads. This also applies to dusty materials.

Materials which normally support mold or fungus growth can often be used if water-proofed or fungus-proofed.

Trends in cushioning materials

There are trends in industry today which affect the cushioning material field.

First, there is a trend toward reducing application time. Some materials, although initially cheap, require considerable labor expenditure in application time. There is increased demand for pre-cut, pre-fabricated, and molded materials.

Second, there is an increasing demand for materials which are capable of absorbing and damping out shock in less space.

Third, there is a trend toward the establishment of performance standards on an industry-wide basis. An example is the job being done by the National Safe Transit Committee.

SAFE TRANSIT CERTIFICATIONS

The latest companies to be certified by the National Safe Transit Committee are: *Seeger Refrigerator Company*, of Evansville, Indiana, and *Chicago Vitreous Enamel Product Co.*, of Cicero, Illinois. This brings to 61 the total number of companies now cooperating in the National Safe Transit Program.

Container Laboratories, Inc., of New York City, is the latest laboratory certified by the Committee, bringing to 15 the number of NST laboratories.

MILITARY PACKAGING UP 35%

In relation to needs, probable military packaging requirements are 35% greater than immediately before the end of World War II, according to Clinton K. Royce, in charge of packaging for the Office of Naval Material.

Roy F. Segur, National Security Resources Board consultant, is of the opinion that the packaging industry, along with other industries, will continue to ride a high wave of business pushed (for the immediate future) more by civilian than military demand.

Both Mr. Royce and Mr. Segur volunteered these statements before the 12th annual forum of the Packaging Institute held recently in New York City.

ICC APPROVES LOWER RATES ON RETURNED SHIPPING CONTAINERS

The Interstate Commerce Commission, in INS Docket No. M-3166, has approved a return rate of one-half of fourth class rate on pallets, skids, platforms, knocked down or folded

under the chairmanship of R. F. Bisbee, for the home appliance industry. This approach has won industry-wide acclaim. If continued, a lot of the guess work, a lot of the waste, a lot of the over-selling, and a lot of the under-packaging (and/or over-packaging) will disappear from the cushioning material field.

flat shipping containers for any quantity returned over the routes of carriers which transported the loaded containers. This is said to apply to truck shipments between points in Illinois, Indiana, Kentucky, Michigan, Missouri, Ohio and Wisconsin. Other states may be covered later upon petition.

This ruling, which should promote the flow of goods, manufactured parts and articles, was said to be in recognition of handling shipments prepared for unit loading instead of bulk or other shipment.

"10 ACRES OF MACHINES" AT MATERIALS HANDLING SHOW

The most extensive discussion of materials handling problems, a phase of industry which now involves upwards of 25 per cent of production payrolls, has been announced for the Materials Handling Conference to be held at the International Amphitheatre, Chicago. The Conference will be held during three of the five days of the 4th National Materials Handling Exposition, April 30 to May 4, under the sponsorship of the American Material Handling Society.

The Exposition, which in three years grew to rank among the five largest industrial shows in the country, will add a huge outdoor arena to its exhibit space in order to permit demonstrations of yard handling equipment. Exhibits will cover 6 acres indoors and 4 acres outdoors.

The Conference will devote its three morning sessions to consideration of general problems. These will include building of materials handling systems; surveying materials handling problems; relating handling to other departments; determining handling

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The WATKINS CONTAINER



Lighter-Stronger

The TRAVELING BILLBOARD

Features

1. The container is a traveling billboard—2 color printing tells your product story on one or all the four sides of the container.
2. It is light in weight—weight saving up to several pounds can be made in practically every case.
3. It saves packing time—it reaches the user 75% assembled.
4. It saves storage space—completely collapsible, it saves shipping space in transit and storage space in the plant.
5. It has extra strength—superior to ordinary containers in product-carrying strength.
6. It resists "weave"—it will carry more top load and resist "weave" better than open-type crates.

Watkins Containers save time in the shipping department; give better protection in transit. Major appliances and any other similar products that can be shipped in a wooden crate can be shipped better in this container. Weights up to 800 pounds are being shipped.

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Crate-Rite Mfg. Corp., Div. of Pacific Ports Ind. Inc.	10901 Russet St., Oakland, California
Dura-Crates Co.	940 E. Michigan St., Indianapolis, Indiana
General Box Co.	500 N. Dearborn St., Chicago, Illinois, and 16th and Maple Sts., Louisville, Kentucky
Hemb & Martin Mfg. Co.	115 Cherry St., Watseka, Illinois
Illinois Box & Crate Co.	811 Center St., Plainfield, Illinois
Kieckhefer Box & Lumber Co.	714 E. Canal St., Milwaukee, Wisconsin
Lane Container Corp.	10212 Denton Rd., Dallas, Texas
Lewisburg Container Co.	243 Singer St., Lewisburg, Ohio
Love Mfg. Inc.	608 S. Commerce St., Wichita, Kansas

— an inquiry to any of these companies will get prompt attention —

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360 N. Michigan Ave., Chicago 1, Ill.

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costs; and presenting a materials handling program to top management. Afternoon sessions will consider special problems of separate industries, including the home appliance industry.

GERRARD STEEL STRAPPING APPT.

William B. Renois has been elected sales vice president of Gerrard Steel Strapping Co., succeeding S. G. Adolf Larsen who is now assistant to the president, according to Harry G. Walter, president of the U.S. Steel subsidiary. Arthur W. Carlquist was appointed general sales staff manager, it was also stated.

PACKAGING AND MATERIALS HANDLING COURSE AT TEMPLE U.

The following short courses are available to industrial personnel in the Philadelphia area at Temple University's Community College:

Packaging — Beginning Monday evening, January 16, and on succeeding Mondays until March 5, are the following: cushioning; packaging machinery and equipment; principles of interior protection; fundamentals of container design; container testing; common carrier rules and regulations; cost consideration in packaging design.

Materials Handling — Beginning Thursday evening, January 11, and on succeeding Thursdays until March 8, are the following: materials handling equipment, stationary and mobile; palletization; unit loads; selection of equipment; financial economy involved in material handling equipment; warehousing and storage.

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"I saw your ad in finish"

MIDWEST ENAMELERS MEET

Attendance at the December 9 luncheon-meeting of the Midwest Enamelers Club, held at Chicago's La-Salle Hotel, was held down considerably by bad weather through the midwestern area.

However, those in attendance were treated to two good technical papers.

PEI ANNOUNCES 1951 COMMITTEE CHAIRMEN

Ray Dadisman, of Armco Steel Corp., and president of the Porcelain Enamel Institute, has announced the following committee chairmen for 1951:

Commercial Research, F. C. Woleslagle, United States Steel Company; *Finance*, F. L. Meacham, Crosley Division, Avco Manufacturing Corp.; *Government Business*, P. B. McBride, Porcelain Metals Corporation; *Institute Development*, D. H. Malcom, Armco Steel Corporation; *Market Development*, Glenn A. Hutt, Ferro

Enamel Corporation.

Arthur Sharon, of Chicago Vitreous, discussed "Abrasion Resistance of Various Types of Porcelain Enamels," using slides to stress his finding that one-coat enamels resisted wear much better than two-coat enamels.

G. A. Cairns, of Macco Products, presented a paper entitled "Advantageous Coordination of Metal Forming and Cleaning Operations."

Enamel Corporation.

National Safe Transit, R. F. Bisee, Westinghouse Electric Corporation. *New Uses*, Charles Lohman, Pemco Corporation; *Process Development*, John L. McLaughlin, Chicago Vitreous Enamel Product Co.; *Quality Development*, G. H. Spencer-Strong, Pemco Corporation. *Sales and Management*, C. J. Rodman, AllianceWare, Inc.; *Shop Practices Forum*, R. L. Fellows, Chicago Vitreous Enamel Product Co.

GLENN HUTT HEADS BIBLIOGRAPHY PUBLICATION COMMITTEE

One of the important projects of the Enamel Division of the American Ceramic Society is the publication of the "Enamel Bibliography."

This manuscript has a most interesting history, according to Glenn A. Hutt, of Ferro Enamel Corporation, chairman of the Publication Committee.

The first issue came out in May, 1929, and appeared as a part of the *ACS Journal*. Under-written by a long list of companies in the enameling industry, the work was the accumulative effort of Herb Carter and Bob Landrum. The second issue was published in 1944 and brought up to

date everything through 1939.

The new Bibliography Publication Committee, serving under Mr. Hutt, includes E. C. Aydelott, Murray Corporation; H. M. Brenner, B. F. Drakenfeld & Co.; H. D. Chase, Dana Chase Publications; E. E. Howe, Chicago Vitreous; R. M. King, Ohio State University; C. P. Lohman, Pemco Corporation; W. H. Pfeiffer, Frigidaire; J. B. Simons, Westinghouse.

The campaign is now underway to raise \$4000 to supplement the balance now available for completing the budget of \$5600 for the completion of this worthwhile project.

AMERICAN KITCHENS SALES SET NEW RECORD; ENAMELING STEEL SHORTAGE CAUSED BELOW-CAPACITY PRODUCTION

Sales of American Kitchens in 1950 zoomed to a record high exceeding even 1948, the best previous year, according to J. E. Guertin, administrative assistant to the general sales manager, American Central Division, Avco Manufacturing Corp.

"American Kitchens sales show a 100% increase over 1949 and a sub-

stantial increase over 1948, the prior sales peak," Guertin revealed. "The market recovery for American Kitchens can be attributed directly to a new, hard-hitting sales program based on adding and training dealers. American Kitchens advertising, sales promotion, and sales training were all expanded considerably in 1950. The

majority of the increase in sales stemmed from these factors . . .

"The steel shortage is very critical, especially in heavy gauge enameling steel vitally needed in sink production. This situation may prove to have caused below-capacity production by as much as 25% for 1950. As a result of the shortage, American Kitchens had to cancel many contract customers," stated Guertin.

Questioned regarding the future effect of the steel shortage assuming current conditions continue over an extended period, Guertin expressed the opinion that "the trend will be to simplify lines."

ACME STEEL FASTENER APPT.

James J. Filas has been appointed manager of the newly-created fastener department of Acme Steel Company, John E. Ott, vice president, has announced. Until his new appointment, Filas had been special representative in charge of stitching machine activities in Acme's central division.

CHICAGO PRESSED METAL GROUP HOLDS "SEMINAR FOR DEFENSE"

Thanks to their able leadership, members of the Chicago District of the Pressed Metal Institute were given first hand information on "how to get defense orders for their companies" at their December 13 meeting held at the Graemere Hotel.

Guests at the dinner-meeting included representatives of the Ordnance Corps, Navy, Army Engineer Corps, Chemical Corps, Air Force, Dept. of Commerce, and Quartermaster Corps. The consensus of the various Government department representatives was that the stampers get acquainted with local Government department offices to make sure their company names be placed on the "bidder's lists."

Clem Caditz, of Northern Metal Products, District chairman, announced that the Chicago PMI January meeting would be concerned with "steel and fabricators", and that the February meeting would be centered around "deep drawing of stainless steel."